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## ORIGINAL ARTICLES

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### PRESIDENT'S ADDRESS\*

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By T. G. DUCKWORTH, D.D.S., SAN ANTONIO, TEXAS

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WE are very fortunate this year to be able to have on the program the names of so many men of national reputation. They have come to give us something which will help us in our work, that we in turn can pass on to our patients.

The Southwestern Society was organized in 1920 with a view of receiving instruction from able men whom we might induce into service for a few days, with the idea of receiving first hand information in the construction and manipulation of appliances used in our work. Our plan was twofold in that it would make for better results and would also tend to standardize in a way the technic employed among the men in the southwestern section of the United States, which would facilitate the exchange of patients. We must realize that no two men would probably handle a case of orthodontia exactly alike, nor is it intended they should. However, there is an intimate relation existing among orthodontists that should always be pleasant and when the membership of this society receives its instruction from the same source it gives an equal advantage and a working knowledge which should preclude any adverse criticism of another man's technic or the appliance he is using. There are always times when one must pass his patients on to another in order to complete what has been started, and any constructive criticism or suggestion should always be well received by those referring the case, and a prompt and courteous reply should be made containing the data pertaining to what has been done, etc. Under no circumstances is it necessary to criticize another orthodontist's procedure in the presence of the patient, as it not only tends to reflect upon the sincerity of the man who

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\*Read before the Southwestern Society of Orthodontists, Waco, Texas, January 24, 1924.

started the work, but also places orthodontia in bad repute, and it is to the interest of the Society that the profession be protected as a whole.

#### ATTENDANCE

The members of the Society are to be complimented on their attendance, as I do not recall a single absentee with the exception of Dr. McCauley who moved to California since the organization in 1920. The membership has increased rapidly and we now have a society composed of men representing the largest cities in the southwest. Those who have located in sections of the country where orthodontia was more or less an unknown quantity must realize that a great deal of missionary work is required in order to stimulate an active interest in orthodontia, and for this reason the majority of the members are in an active educational campaign, and I feel that if we are given the proper support and cooperation by such men as we have as our guests, we will help the profession in an educational way, if nothing more.

#### PROGRAM

The success of this society will depend upon the Board of Censors or Program Committee in providing talent for the meeting which will make it sufficiently interesting and instructive, that the men will lay aside their daily duties and come every year realizing that it is worth their while. It has been the aim of the society since its organization to bind the men as closely as possible in friendship, and to respect the other man's shortcomings. This year we are trying to work out a new scheme in arranging the program in group form, and I wish to take this opportunity to thank the Board of Censors and our Secretary for the energy they have expended in securing such worthy talent and the arrangement of the program. I feel that if the group plan is carried out from year to year, or until we have thoroughly mastered the working of such an arrangement, it will prove to be the most efficient way of putting the meeting over. We are compelled, according to the By-Laws and Constitution, to contribute something to each meeting and in so doing, on account of the number in the society, the time allotted for each man's part must necessarily be short, but it would be better to limit the time and keep the men actively interested than to depend upon a few men appearing on the program each year. Until such time as it is found advisable to change the By-Laws and Constitution each member of the Society is to take part in the program. Arranging for some one to act as chairman of a group of men located in close proximity, and designating the time in which his group will appear in the program, will greatly facilitate matters and give his group an opportunity to work out any phase of Orthodontia. It is also intended that the chairman of each group shall have general oversight of the meeting during his part of the program and he is to look to the President and Secretary for any assistance in the way of arranging for tables, gas, lights, lantern, etc., which he will need in putting his work before the society. He shall also make explanation to the society of the work to be given by his group, introducing the members of his group.

Dr. Ketcham, Dr. Mershon, Dr. Howard, and Dr. Oliver are chairmen of Groups 3, 5, 8 and 9 and we trust that you will feel perfectly free to ask for anything that will assist you with your work. I believe there would be no hesitancy on the part of the other chairmen in setting off the fireworks in case everything was not arranged "according to Hoyle."

Time has been arranged from 4:15 to 6:00 p.m. for table clinics, and any one having clinics in addition to those noted in the program should get in communication with Dr. Busby that he may have everything arranged for you.

The program has been prepared on the assumption that all the members of the Southern Society are present today, and if they are not we feel that it is our loss, as we wanted to meet them and to hear what they had to say and in return give them what we could. The Southern Society has some exceedingly fine men and we want to thank them for the many invitations to meet in some of their cities, and hope that in the near future we can have a combined program.

To those who have come miles to address us we extend our thanks and appreciation.

If everything goes off on schedule we hope to have a fair night at the Spring Lake Country Club as Dr. Oliver will have re-won the silver loving cup, and Drs. Eby, Johnson, Mosby and Fisher can step on the gas to their heart's content.

It may be necessary to apologize for the conduct of some of our members as we do not believe that all work without some play is good policy, and they will probably inject some foolishness along with the game of golf. We trust all will enter into this part of the program as this is being featured at our meeting in order that the men can be made to feel more at ease while on the floor reading a paper or giving a clinic.

If members of our Society can be made to feel more confident of their ground they will bring out many points that otherwise would be omitted through restraint of delivery, and they would be in a better position to take part in the programs of other societies.

I think it is the consensus of opinion among the members of the Society that we place ourselves in the position of a student in school and recite our lesson that we may be told where we are wrong. It is quite noticeable in the office at home when my attention is called to the fact that I am not doing certain things according to the way in which they are being done in the offices of some of our well-known men, and invariably on looking an article up and reading it find myself doing this particular thing in an inefficient manner. If we can develop a better technic and handle our practice in a more systematic way we are going to get better results, and consequently the patients will be better satisfied and our reputation will be increased. Practical instruction in handling our cases at the present time is a point the Society is encouraging.

I will pass some models around that you may gain some idea of what we are doing. The case was selected in order to represent an average result



in the hands of any one of our membership. As far as I am able to determine the case represents an average condition met with in practice, and requiring an average length of time to treat—a year and a half—with about four months in which nothing was on the teeth. The appliances used are the ones that are on the models and are probably about what other members of the Society would select for this particular case. However, some are not using the ribbon arch at all. The models are probably a little below par, but they approximate a general average.

I wish to thank the membership for the trust in me for the past year.

#### DISCUSSION

*Dr. T. W. Sorrels.*—It is to be regretted that Dr. Busby met with delay in arriving and is not present to discuss our honorable President's address. His discourses are always enjoyable and appreciated, so his absence from this part of the program is sure to mean a disappointment. Dr. Busby will be remembered as no less a personage than the fellow who became famous overnight after having introduced the cow-hide band.

Dr. Duckworth's address was certainly characteristic of him, in that it was filled with valuable ideas and suggestions. The topics he discussed are truly inspirational and wholesome food for thought. Probably it is to him, more than anyone else, to whom credit is due for organizing the Southwestern Society. It was with the idea of approaching a more nearly standardized technic and of improving ourselves in general that Drs. Duckworth and Gorman were prompted to call the 1920 meeting.

Ideas are of little value unless they are unfolded and made effective. Of course they must be constructive and not destructive if they are going to prove of real value. The meeting of 1920 was an idea put into effect which has made it possible for us to be here today, sitting as a fraternal brotherhood for the purpose of gaining and disseminating more orthodontic information.

A mere suggestion, if presented at the proper time and place, often means the accomplishment of great things. For example, if you will pardon a personal reference, at a meeting of the Oklahoma City Dental Study Club, an informal round table discussion was going on.

One of the members said:

"Do you know this is 'Dental Week' in the public schools?"

"No!" every one replied in astonishment.

"Yes," he continued, "And a patient of mine was wondering today why some of us are not giving educational talks."

"Let's do it," responded one.

"The time is right," said another.

A committee was appointed and called on the Medical Supervisor of the public schools the next morning. The report was found to be false and nothing along that line could be accomplished during the week, but the way was opened for even greater things. The school physician stated that our services and cooperation were needed and greatly desired, and that he would arrange a "Dental Week." It was further suggested that our dental society committee cooperate with a recently appointed medical and dental committee of the Chamber of Commerce, and that these committees, working jointly, introduce and recommend to the School Board a practical plan of establishing dental clinics. It means educational talk on oral hygiene, dental examinations, and dental clinics for the school children of Oklahoma City within the year. We learned that our local dental society had been asleep on duty when, as a matter of fact, it should have been leading the movement.

We have truly been pioneers in orthodontia in the Southwest, and there is great need for further missionary and educational work, as Dr. Duckworth brought out. There are many ways and means of carrying on an ethical and dignified educational and publicity service. We should take advantage of such opportunities as present themselves to reach



not only the general practitioners of dentistry, but also the general public. A fitting example is the booklet published only recently by the Oklahoma City Rotary Club entitled "Reclaiming the Crippled Child" with which I have made you familiar. We all realize and appreciate the need of such educational and publicity service for the benefit of the public and that of orthodontia. A properly functioning Educational and Publicity committee would be a valuable adjunct to our society. Right here at this meeting such a committee with a practical plan of procedure could arrange for interviews with our guests of national and international reputation, and news items of a truly dignified and educational character could be given the press. Such an arrangement would reduce errors and misconceptions to the minimum.

Dr. Duckworth's ambition to more nearly standardize our operative work and methods of doing business is of greater significance than you first might realize. Do you know that prejudice and selfish ideas relating to different types of appliances has done more to create discord and cause disruption in orthodontia societies than any other one thing? It is difficult even to estimate how much the Angle and Independent group split hurt the American society. It left a sore that has never healed. The education of our men has been more or less uniform and we have come to think and act very much along the same line. This accounts in no small way for the harmony and good will that prevails in our Society. We have no radicals or conservatives, but are all of a progressive type.

Dr. Duckworth was very modest in speaking of the program for our meeting. I presume he left it largely to speak for itself, which it surely will do. Each year it seems that there has been no chance for improvement, and yet—every year "in every way they are getting better and better." The Officers and Board of Censors cannot be too highly commended for the wonderful program they have furnished us. These meetings do not just happen to be here when we arrive. It takes hours upon hours of thought and many days of work to put them over, and we should feel very grateful to those who serve us in this capacity.

It is certainly a great honor and compliment to have so many noted men such as Doctors Mershon, Pollock, Oliver, Brady, Kelsey, Ketcham, Howard and Fisher as our guests with those of the Southern society. We are very anxious to see this friendly relationship grow, and hope that we may sometime find it possible to meet with them in a joint session.

I believe we are heartily in accord with the By-laws making it obligatory upon our members to present something at our meetings. The group plan is sure to relieve the pressure of time and number, and will meet with general favor. It should stand unamended even though we grow so great in number that it will have to be further modified and members limited to four minute speeches. It causes our members to realize it is their duty to appear on programs, and the knowledge acquired through the process of writing papers and giving clinics serves to improve them in many ways.

## THE USE OF OVERLAYS ON DECIDUOUS MOLARS IN THE EARLY TREATMENT OF DEEP OVERBITE CASES\*

BY C. STERLING CONOVER, D.D.S., NEW YORK CITY

THIS clinic showed mainly the technic of making overlays for deciduous molars by means of a series of models depicting each step.

The indications for the use of overlays will not be considered here, as that phase was fully covered by Dr. J. Lowe Young in his paper, "A Rational Treatment of Infraclusion Cases."

The deciduous molars are prepared by removing the buccal and lingual contours with suitable carborundum stones. (Fig. 1.) S. S. White stones No. 9 for the handpiece and contra-angle have been found to be the most effective in my hands. (Fig. 2.) An impression in modeling compound is

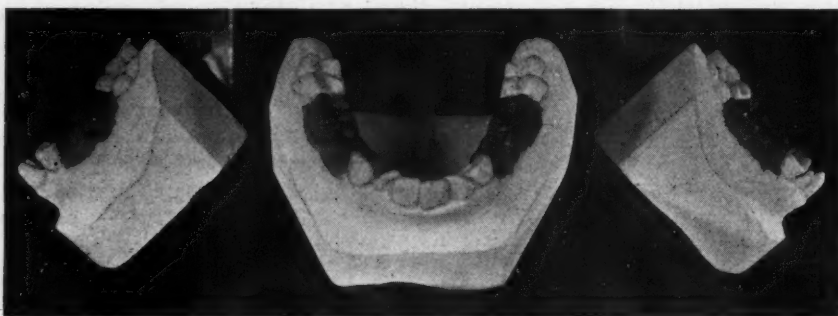


Fig. 1.

Fig. 1.—Showing the prepared deciduous molars made of amalgam.



Fig. 2.

Fig. 2.—Type of carborundum stone used to prepare the deciduous molars.

taken. After the impression has been thoroughly dried out with compressed air, the impressions of the prepared teeth are packed with amalgam. The amalgam is allowed to set and then the remainder of the impression poured in plaster. When the plaster has hardened, the compound is removed and the model trimmed. We now have a model with the prepared deciduous molars made of amalgam. (Fig. 1.)

This model, with a model of the opposing jaw, is mounted on an articulator, with allowance for the amount of correction it is desired to make in the overbite. (Fig. 4.) The amalgam dies are then coated with a thin film of vaseline or oil to facilitate the subsequent removal of the wax patterns.

A roll of softened inlay wax is laid over the prepared deciduous molars on each side and the jaws of the articulator closed. This gives a rough bite which serves as a guide in the carving. In carving these inlays I have found the following procedure to be very helpful:

\*Given before the American Society of Orthodontists, Chicago, Ill., April 9-11, 1923.

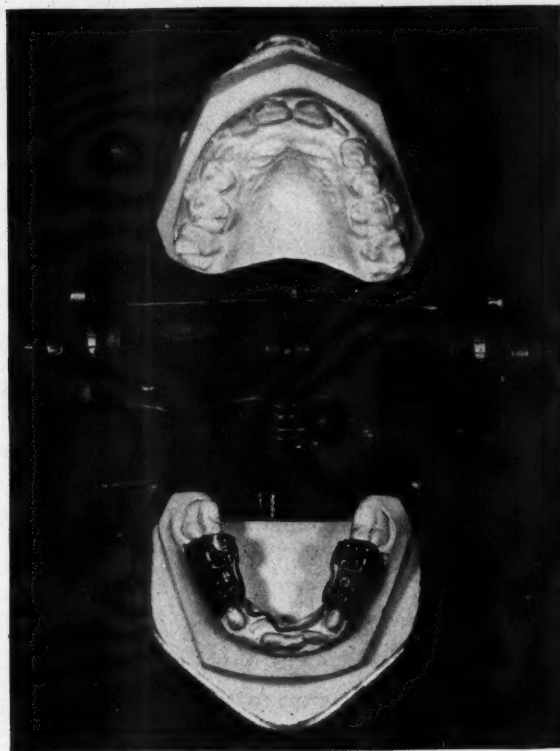


Fig. 3.—Overlays in place, showing attached lingual arch.

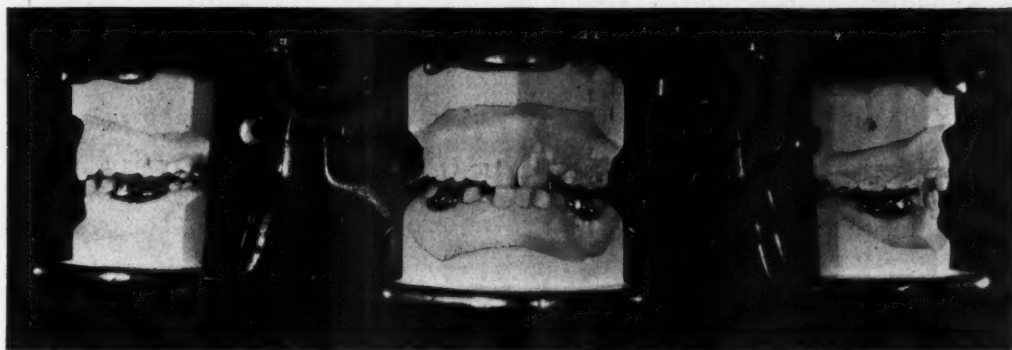


Fig. 4.—Showing the articulated models with the overlays in place.

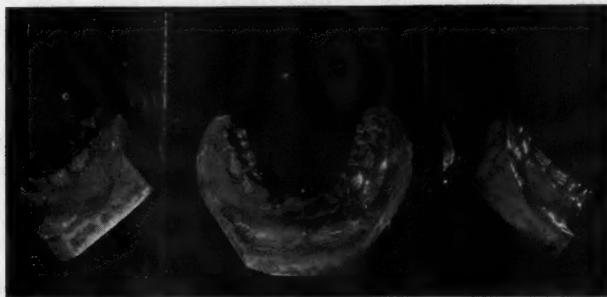


Fig. 5.—Little nicks are cut buccally and lingually on the prepared teeth just prior to cementing the overlays in place.



1. Define the mesiodistal length of the crown.
2. Roughly form the tooth to size, shape and contour.
3. Carve the occlusal surface to the correct anatomic form and proper articulation.
4. Smooth up the wax pattern by the careful use of campho-phenique on a small pellet of cotton.

Each overlay is mounted on a sprue, invested and cast *separately*. After they have been fitted on the amalgam dies and polished, any attachments which one wishes to use can be soldered to the overlays and the appliance made up on the model. (Figs. 3 and 4.) Before cementing on the overlays I cut several little grooves or nicks both buccally and lingually in the temporary molars, thus giving the cement a firmer hold on the teeth. (Fig. 5.)

The use of these overlays as an aid in the early correction of a deep overbite is never indicated when the radiographs show the absence of the permanent successors.

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#### PRESIDENT'S ADDRESS\*

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BY GEORGE B. CROZAT, D.D.S., NEW ORLEANS, LA.

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**A**DHERING to custom, it is my privilege and pleasure to address you, fellow members of the Alumni Society of the Dewey School of Orthodontia.

It is with a sincere feeling of appreciation that I wish to thank you for being honored with the Presidency of this Society. I also wish to thank my fellow officers for their cooperation in arranging for this meeting; particularly, the Chairman and the members of the Program Committee for their splendid work in preparing the excellent program which will be presented here. I extend to our guests and friends a most hearty welcome.

As our program is quite full and our time short, I wish to make my address as brief as possible that there may be sufficient time for discussion of all papers to be presented.

Let us go back to our previous meeting, and recall the plans made at that time for the organization of our Alumni Clinic. I wish that it could be your opportunity and good fortune to visit Dr. Eby, as it was my pleasure last fall, and to see the splendid work that has been accomplished toward the realization of these plans.

As members of the Alumni Society, we must cultivate a feeling of close association with the school and its policy in the teaching of orthodontia. We cannot overestimate the benefit we could derive should each of us avail ourselves of its opportunities. There is no doubt that a great deal of research work is being conducted at the Alumni Clinic and it is only a matter of

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\*Delivered before the Alumni Society of the Dewey School of Orthodontia, Chicago, Ill., April 12-13, 1923.

time when this will be of inestimable value both to the students attending the school and to ourselves. Then it will be for us to make the most of this opportunity by visiting the Clinic at frequent intervals.

Can we with our obligations attend various orthodontic meetings, and besides find time to go to New York and observe the splendid work of the Clinic? Has not the time arrived to warrant the holding of our meeting independently of the American Society? It would seem that our membership is sufficiently large that it would be no longer necessary to have a dual attraction to insure sufficient attendance. Would it not then be advisable that we hold our meetings in New York for instance, at the end of the course when we could combine a visit to the Clinic and meet the graduates year by year? Will our meetings be as successful as they have been in the past should our meetings continue to follow that of the American Society? Since we have held our meetings following the American Society, we have reduced the time from three to two days. Has this change been constructive? I believe and think that you will share my opinion that there is not the same enthusiasm evidenced when going from a larger to a smaller meeting.

I also feel that the majority of us attend the American Society merely as the audience, not actively participating in discussions. This position of course is naturally the result of our inexperience. Therefore, when our meeting follows the larger meeting, we have lost much of the enthusiasm.

Assuming that our meetings cannot be as successful when held after that of the American Society, could we resume our former plan of preceding it, without our motives being misinterpreted? Realizing that our success will depend largely upon the time at which our meeting is held, I have chosen to bring this matter before you for your discussion.

First:—That we continue to hold our meetings as we do at the present time, succeeding the American Society.

Second:—That we revert to our former plan of preceding the American Society.

Third:—That we abandon meeting at the time of the American Society and meet instead at the termination of the course of instruction when we would be able to visit the Alumni Clinic annually, and meet each year's class.

If the thoughts that I have presented are worthy of your consideration, I hope that you will not hesitate to discuss them freely.

In closing, I will ask that you kindly attend the sessions promptly as outlined on the program that there may be no delay, and that each subject will receive sufficient time for ample discussion.

#### DISCUSSION

*Dr. W. E. Flesher.*—While Dr. Crozat's paper was short I consider it quite a classic in the different points he has brought before us. He outlined them in such a way that we can very easily proceed to the discussion and give to him our ideas.

As I understand the Alumni Society, we are to meet together for the advancement of science and research, and for fellowship. Through these means will come our advancement along all lines of orthodontia.

What I have to say relative to the time of meeting will be a general discussion, and not regarding our meeting next year. I feel as the President feels, that our meeting following the American Society is not the best thing for us. We have shortened our time and we are tired after the three days' meeting and we do not have the same enthusiasm. As to meeting before the American Society, I feel that it, too, has the same disadvantages. For the benefit of the school and for the benefit of the alumni and for our clinic which has been established, (while New York is a long way from most of us,) I believe it would be a good thing to have the meeting at the close of the course. We will then get in close touch with our recent graduates, our numbers will grow each year, for at present some of the younger graduates are not getting into the Alumni Society as they should. The question to be determined is what is the best thing for the alumni and their future. I think we should discuss that from an impersonal point of view. We all have our own personal inconveniences and conveniences to outgrow and we have our meetings at home in different sections, our different orthodontic and state meetings, and I think we should discuss the matter from every angle and bring out what is best for the alumni. If we meet at the close of the course we could start the young graduates out on their orthodontia career with enthusiasm and I feel it would be a splendid thing for the school, for the alumni and for us as individuals.

*Dr. William C. Fisher.*—I would like to discuss only that part of the President's Address referring to the time of meeting. I think it is a matter that each and every one should express an opinion upon and perhaps vote upon, just as he thinks best for all concerned. It is a subject that has just as many opinions as there are members. My connection with the school makes me want to tell you that if you vote to come to New York and meet at the close of each session I shall certainly welcome you. I believe we could do wonderfully good work by the inspiration which we would give to the graduating class. I do not want you to think that I am standing up here and asking you to put me and the school ahead of the Alumni Society. Whichever way you decide, I certainly will support you, but I shall be very glad if you do decide to come to New York.

*Dr. C. E. Bington.*—I think the recommendations set forth by Dr. Crozat are timely and should be acted upon. We have been here for three days and are on the ragged edge. I think three days with a crowded program is long enough for any body of men. We get to the point where we cannot hear or see well, and there is bound to be much the same sort of thing on the program. If our meeting came at a time of year when it would not interfere with any other meeting we could go there without being overshadowed by another society. The suggestion is a very good one and if it can be worked out by the Executive Committee or by this body I think we should decide on it. New York, I think, is a splendid place to meet, and I believe we would not object to going there occasionally. I do not know that we should set that as a permanent place, but let us say that next year we will go to New York and let us get away from having our meeting either preceding or following the American Society, for the reasons that have been very well set forth by our President. We must take into question, of course, our state meetings and all the other orthodontia meetings, and it will be pretty hard, but let us work to the end of having a distinct society. Working to that end we will have a better and more enthusiastic meeting.

*Dr. Landis H. Wirt.*—I wish to congratulate the Society on hearing such a fine presidential address. It was brief but to the point. I believe it is right that we should support the clinic we have organized in New York. I think it should do a great deal of good in furthering our interests. I really believe we would not make a very great mistake if it would be possible to have the Dewey School of Orthodontia as a school really belong to the Alumni. I do not mean to say that the Alumni should have all the management of that school, but I think we should take more interest in it rather than leave it to a group of men as a personal enterprise. We should be called upon to support that school financially if necessary, and in doing so we should have something to say about the policy of the school. I believe any orthodontia school, particularly our school, should be very



careful about the kind of men they allow to become students of that school. They may do an injustice to the school, to the profession and to the public if they are not very careful about such a matter. I think we should give some recognition of advancement, such as some degree or something similar. I should like to support that school and clinic every year, if necessary, but it might be preferable to all of us to give such support if we felt that it was more our own institution. One of the things I think we should do, that we have not done very much, is to advance the interest of the specialty, and indirectly advance it by offering some kind of educational work among the rest of the profession. They need it even if they are not going to treat cases in their offices. They need to know what we are doing, and I think it is necessary for us to see that something of that sort is done.

*Dr. George F. Burke.*—I have listened to the remarks of the President and others in regard to holding our annual meeting at the close of the Dewey session. I think Dr. Flesher has offered some splendid arguments. A lot of young men, when they finish the course, have not a broad understanding of this sort of service. There is doubt in a great many minds as to what can be actually accomplished. Now, if the alumni go back with their demonstrations and their clinics and give presentations it would help a great deal toward building up the interest and morale among the men who are just about to graduate. I think that is a splendid argument. Dr. Byington has suggested that now it proves a little tiresome and that there is some duplication, which is true. Many men who are interested in the American Society feel that all should throw their whole strength and interest into the clinics of that organization. I confess that several years ago I took that viewpoint, but after listening to these arguments I am more than glad to yield to their point of view.

*Dr. William C. Fisher.*—If I am not too presuming in speaking again, for a moment, I would like to endorse Dr. Wirt's remarks. My thought has been that for the last several years the alumni have not been critical enough of the school. I assure you that I want not only their support but I need their criticism many, many times, and I heartily endorse that part of the sentiment that it is time for the Alumni Society not only to have something to say about the students but that they say something about the school.

*Dr. Elizabeth Richardson.*—I enjoyed hearing the President's Address and am in hearty accord with the meeting of the alumni. It makes very little difference to me whether I go to New York or New Mexico. I am sure to be there if possible. I remember when I graduated it was very enjoyable to attend the meetings, and I am sure each graduate will feel the same. I would like to hear what Dr. Dewey thinks about it.

*Dr. W. A. Murray.*—I have not been out of the Dewey School long enough to have lost the student point of view. After spending eight weeks in the heat of New York with the cramming we have to do, I do not think we should take too seriously what the students will gain by our going there. I think we would all gain ourselves, but I know when I was getting ready to leave the first train out of New York could not get me away soon enough.

*Dr. H. C. Rodenhouse.*—I happened to belong to the same class with Dr. Murray. When I travel I always take my wife along and I do not think at that time of year I would like to go to New York and spend any time. It is extremely unpleasant then. As far as giving pep to the students is concerned, the school gives them all the pep they need. Anybody coming out of the Dewey School without being fired with ambition will not get any more, but whatever the membership decides, I shall, of course, be glad to support.

*Dr. W. A. Hillis.*—I also was in the same class with these two gentlemen and I think they have expressed their personal views in the matter. Most of these men did want to get away from the city. It was hot, terribly hot, as hot as,—well you know how hot it was, but I think it could be arranged so that the men taking the course could be made to believe that they should be there, that it was a part of the course. They will then have to be there, and will get the benefits they may obtain from attending a meeting like this,

even against their will. There is no doubt but that if I had gone into a meeting following my course and seen the results these men have accomplished I might have gone my way with the idea that what man has done man can do, and felt that I might float along with these men in their realm of accomplishments. I think if the meeting could be arranged for Friday and Saturday, so that the men need not stay over their week-end, it would be a wonderful thing for them. If the alumni could come and give what they do before these men down there I think it would be a great help to the boys who are just finishing their course, as well as to the future of orthodontia.

*Dr. W. W. Martin.*—There is only one thing I want to mention and that is that I am heartily in sympathy with the advancement of these two societies. I always have been and always will be. This is the first time that I have had a chance to express this opinion publicly but the time has arrived now and I think we should act. I will mention something that happened to one of my classmates out in Iowa who has taken the Dewey course but has got out of orthodontia work because he says things do not work out as they say they do in school. One of the best things we have out there is the Alumni clinic at the university in Iowa City. The boys come in and enjoy the meeting and I think from what Dr. Fisher has said, nothing will please the people in the school so much as to have us spend two or three days there at the end of the course.

*Dr. Landis H. Wirt.*—I am thoroughly in accord with what was said about the heat in New York City at that time of year, and I think I would not care to go from my cool place to New York at that season unless it was very urgent. I have an idea that there must be some place near New York where we could get some sea air, perhaps down at one of the beaches, and hold the meeting at the same time.

*Dr. Jesse F. Keeney.*—Why not have the meeting on the last three days of the Dewey course? If the term ends on Saturday, why not have the meeting on Thursday, Friday and Saturday? In that way the students who are just graduating will get the benefit of the meeting without spending any extra time in New York.

*Dr. W. A. McCarter.*—It seems to me, that any motion at this time would be a little premature for the matter should be taken up at the time of the business meeting. We are now simply discussing the President's address and his suggestions about the time and place of meetings are what we should discuss and give our ideas about. There is an inclination to think that the Alumni Society is in some way a rival of the American Society. I think that is entirely a wrong idea. We have been having our meetings in conjunction with them, but the American Society is made up of men who are practicing the same specialty. That is the original society and that society has to be kept up by men who graduate from different schools of orthodontia. There are several schools now teaching orthodontia, and if the American Society is to be kept up it must be supported by new men. It seems to me we are in no way conflicting with the American Society, and I think the only time for the Society to hold its meeting is at some other time and place from that of the American Society. As an alumnus we are born into this Society the same as a child is born into a family. This is the Dewey School family, and we can no more help belonging to this Society than we can help being born into a certain family and it seems to me the logical place to have our meetings would be where the school is situated. No matter where that is it is the place and it is the time to go back home and get acquainted with our new brothers and sisters, and let them know who their older brothers and sisters are, and if there is any enthusiasm to be promoted let the students find out that they really belong to the Society, that they have an Alma Mater. If we can keep up the enthusiasm and if we have improved any since we have left the school we can go over these things and have a real family visit. That is my idea of the Dewey Alumni. I think we will have no difficulty in creating enough enthusiasm to go back. We are not trying to run a society in competition with the American Society. That is a society in itself, and I think every graduate who comes out of an orthodontia school should have an aspiration to belong to that society, for that is where we all get inspiration and we should all support it loyally.

*Dr. S. W. Bradley.*—I wish to express my views even though they have been already expressed by others. You mention the heat of New York, but it is no hotter than Kansas City. I think while I was as anxious as anybody to get away from Kansas City, if the alumni were going to have a meeting there, I would have been glad to stay over for a couple of days.

In regard to meeting in connection with the American Society, you have decided that you are tired of it. One of the members of the American Society said we should not have our meeting before, because they listened to us and then were tired when their meeting came. We have received a kind invitation from Dr. Fisher to meet in New York after the Dewey session, and I think that would be a good plan to try out. I think we can all stand the heat provided the session is not too long.

*Dr. Crozat (closing).*—It affords me great pleasure to hear the matter I thought vital to the Society so thoroughly discussed. It was my wish that this matter be discussed early in the meeting. No action can be taken, but let each one think about it and talk it over, and when the time arrives for us to vote each of us will have had a splendid opportunity to decide what will be best.

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## PRACTICAL PEDODONTIA, OR JUVENILE OPERATIVE DENTISTRY, AND PUBLIC HEALTH DENTISTRY

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BY FLOYDE EDDY HOGEBOOM, D.D.S., LOS ANGELES, CALIF.

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(Continued from April issue.)

### CHAPTER V

#### THE FIRST PERMANENT MOLAR

UPON casual thought there would seem to be little relationship between our national health and the first permanent molar group. But gradually it has become apparent that much of the after ills in life are traceable directly and indirectly to lack of early care for the first permanent molar group.

The first permanent molar erupts behind the deciduous molars at about six years of age. This may vary from one to two years. As the first and second deciduous molars are usually lost within a few months of each other it necessarily leaves very little masticatory surface. But if the jaws are normally developed and the teeth normally shed it is not long before the bicuspid come into occlusion.

1. It is the only permanent tooth to be developed directly from the dental lamina.

2. Noyes makes the statement that it is the only permanent tooth whose crown is completely calcified by the time "the individual is thrown upon his own resources for obtaining nourishment." (Fig. 28.)

3. It is the most susceptible to deep caries and pulp disease. (Fig. 54.)

The fissures of this molar group are usually very imperfectly closed. Consequently the food debris collects very rapidly and a potential cavity exists. From clinical experience it would seem that the tooth is nonresist-



ant to the rapid and deep spread of caries. The pulp is quickly involved with the usual sequelae.

4. It is most usually involved by apical disease. This condition is a natural sequence of progressive caries and pulp involvement.

5. Of all permanent teeth, it is the most frequently lost. The previous condition usually is followed by the extraction of the tooth. Some operators attempt to save the tooth by filling the canals with medicated pastes.

6. Because of the apical deflection and multiple foramina, apically diseased first permanent molars form a large proportion of the dental foci causing systemic diseases. If this condition obtains before the ninth year the apex is as yet incompletely closed. Of course it is practically impossible to place a good root canal filling. The root canal work on the vast majority of these "lame" molars is worse than none at all. And in a large percentage of cases systemic involvements have been traced to these molars as primary foci.

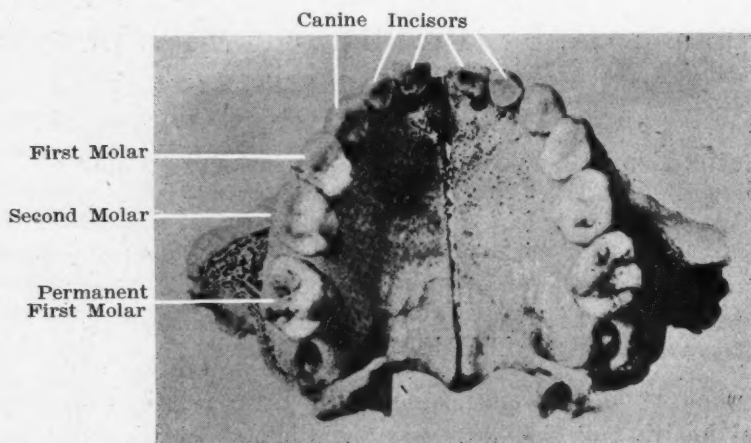


Fig. 51.—The upper dental arch about the seventh year. (Broomel and Fischelis.)

It is during this critical period that malocclusion may become aggravated by the first permanent molars not coming into proper occlusion.

B. Frank Gray says, "In making measurements of deciduous dentures, from say the labial surfaces of the incisors to the distal surface of the second deciduous molar, then noting the measurement of space required by the three molar teeth of the adult denture of the same individual, one is surprised to see that nearly as much development has taken place in the maxillae and mandible posterior to the deciduous teeth as would be represented by the anteroposterior extent of the deciduous denture, or by the immediate successors of the deciduous teeth, i.e., the permanent incisors, cuspids, and bicuspids. In other words, the first permanent molar particularly forms the commencement of the posterior half of the complete adult denture." (Fig. 52.)

#### FISSURE TREATMENT (Fig. 55)

When the first permanent molar erupts far enough above the gums a fissure filling will be indicated if evidences of hypoplasia be present. The

tooth is dried well with alcohol and air. Permanent cement is worked into the crevices and fissures. These cement fillings must not fill the sulci but must be confined to the fissures alone. Any filling placed too high may assist in the development of malocclusion. Silver nitrate may be painted in the fissures, but the tooth must be well dried and kept dry long enough to allow the silver nitrate to work in. Ammoniated silver nitrate, commonly known as Howe's silver nitrate solution, may be deposited.

The tooth is well protected with cotton rolls or gauze and dried with alcohol and air. A wisp of cotton is dipped in the ammoniated silver nitrate and rubbed into the fissures. A black precipitate quickly forms. This is finely divided metallic silver which occludes the fine openings of the fissures.



Fig. 52.—A typical skull. (Cryer.)

#### PROPHYLACTIC FILLINGS (Fig. 55)

These are in no sense restorations; they are preventive methods. Frequently the fissures will be rather deep and in some places badly affected. The partial eruption of the tooth as well as the enlarged pulp does not allow for cavity preparation of an extended type. Hence it is necessary to insert some material in the nature of a "tide-over."

Cement of good quality makes a good prophylactic filling. Copper amalgam is par excellent. It works into the shallow cavities very well, its only drawback being the cupping of the alloy.

Large cavity extensions in teeth with enlarged pulps and incomplete foramina are to be deprecated. It is better to tide over for awhile rather than bring on an acute hyperemia and possible pulp involvement. But, if the cavity is of such size that a large cavity preparation is necessary then

by all means do it, only providing ample pulp protection from thermal shock by cement bases.

#### PULPECTOMY AND PULPOTOMY

*Pulpectomy* is the complete removal of the pulp. It may be accomplished in many ways.

1. *Conductive Anesthesia*.—This method can be used when the pulp chamber is sterilized, but should not be indulged in unless it is sterile.

2. *Pressure Anesthesia*.—This method has the same drawback as conductive anesthesia. A pressure may force particles of infected material through the foramen into the apical area. This is a very good method in case of surgical exposure in the preparation of a cavity.

3. *Arsenic Method*.—The application of arsenic trioxide in the form of paste or fiber is perhaps the best method in the average conditions. A small amount of the paste, fiber, or powder is placed directly over the exposure, the rubber dam being in place. Then cement is flowed over the entire mass but not pressed down. After twenty-four hours the tooth is isolated under the dam and opened into.

It is dangerous to leave arsenic in a cavity more than one day as it is progressive in action and may pass through the foramen. If a shred of pulp is still vital it may be devitalized by sealing in phenol for a few days.

4. *Pastes Containing Formalin*.—Pastes containing formalin when applied directly over the pulp and sealed for four days will devitalize the pulp and sterilize the contents of the pulp chamber to some extent.

*Pulpotomy* means the partial removal of the pulp. It is advocated by some claiming that calcification of the remaining stump takes place. This may be clinically demonstrable in some cases, but until sufficient clinical material is before us it would be wiser to proceed with complete pulpectomy.

#### PULP CAPPING

The necessity of attempted pulp capping is often presented. The factors governing success must be taken into consideration first:

1. Whether the exposure is by removal of contiguous caries;
2. Whether by instrumentation;
3. The age of the patient;
4. The condition of the patient, whether strong or affected by some systemic involvement;
5. The condition of the pulp, normal, hyperemic, purulent in part, etc.

*Exposure by Caries*.—If the pulp is exposed by invasion of caries it is next to impossible to save the pulp permanently. It is better to recognize the inevitable loss of the pulp and properly fill the roots.

*Instrumentation*.—If in the preparation of a cavity the pulp is exposed by a bur or instrument, pulp conservation may be attempted. Especially is this true in a young patient when the root canals are not completely formed or the foramen closed.

There are teeth in which the size and direction of the canals do not al-



low for successful canal surgery and when an exposure occurs by instrumentation it is well to attempt pulp capping.

*Age.*—The main differentiation is the semi or complete formation of the canals. With advancing age the canals become almost completely obliterated. In the young the canals are not fully formed and the foramina are large and bulbous.

*Condition of Patient.*—If the patient is normal and of vigorous type pulp capping is greatly assisted. But in a patient whose vital resistance is below par it is quite certain that the body will not be able to rebuild the punctured pulp wall.



Fig. 53.—The way Nature makes and intends the arch and teeth to be.



Fig. 54.—The way man allows his teeth to become.

*Condition of the Pulp.*—Any condition except a normal pulp does not lend to a safe prognosis. A partial putrescence, and active or acute hyperemia are all contraindicative of success. In the case of active hyperemia the pulp must be restored to normal by appropriate methods before final pulp capping is resorted to. The overlying dentin must be well sterilized as this dentin usually is contaminated during instrumentation. All pressure of capping material must be avoided.

#### ENDELMAN'S TECHNIC FOR PULP CAPPING

1. From a piece of stiff writing paper cut out a form large enough to cover the floor of the cavity. Lay it aside.
2. Wipe the cavity with 95 per cent phenol. Let it remain in the cavity for five minutes. Wash off the excess of phenol with alcohol and dry with blasts of warm air.
3. Apply to the cavity a coating of cavatine. Dry the varnish with warm air.

4. Upon a piece of writing paper previously prepared apply a small amount of cement. Carry it into the cavity and by pressing evenly on the paper spread the cement on the pulpal wall. This same technic may be employed, and is employed, in capping exposed pulps. In some cases it is advisable to use a metal cap instead of the paper. Cut out a disc of gold plate or copper plate. With the end of an instrument press on the center of the disc to raise its edges and into the concavity so formed place the capping mixture.

It is essential that capping mixtures be nonirritating, that they be sedative and antiseptic. One may use either zinc oxide, C.P., made into a paste



Fig. 55.—Hypoplastic defect of the enamel. Incomplete fusion of the cusps of a molar producing a defective fissure as shown at *c*. Areas of normal enamel at *a*, *a'*; a small area of normal dentin at *b*.

with eugenol or oil of cloves, or a capping mixture consisting of zinc oxide, 10 gr. hydronaphthol, 2 gr., oil of cloves, q.s. to make paste.

After the cap containing the material is in place, a layer of cement should be placed upon it.

#### BUCKLEY'S TECHNIC FOR PULP CAPPING

"After breaking down all overhanging edges of enamel and removing as much of the debris and softened dentin as can be done without pain or injury to the pulp, the cavity should be flooded with a mild, nonirritating, antiseptic solution, previously heated to the temperature of the body.

"These solutions can be used as a spray or with a water syringe before applying the rubber dam, thus adding comfort and cleanliness to the operation. The excess can now be absorbed from the cavity with cotton and the dam adjusted. By using some obtunding remedy and a sharp spoon excavator, or often times a large round bur in the engine, the carious dentin can be removed. If, however, the thorough removal of all the discolored dentin would make a large exposure, it is best to leave the layer overlying the pulp and depend upon the sterilizing agent, rather than to jeopardize the life of this organ by the injury thus produced. The delicate pulp tissue will not tolerate much abuse and remain quiet, therefore, if it is injured to any great extent it had better be removed at once. The dentin can now be sterilized by sealing in the cavity, for a few days, phenol compound.

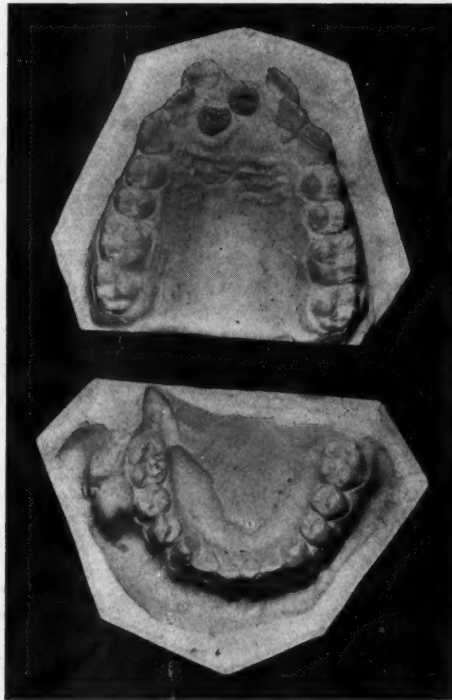


Fig. 56.—Upper cast shows two supernumerary teeth. One other lies in the bone back of the left lateral.

Lower cast. Fracture occurred at age of seven in line of second molar. At eleven the tooth was lying in the position shown with one root formed, the other not formed.

"It is best to seal with a veneer of quick-setting cement, previously filling most of the cavity with cotton, thereby avoiding pressure and facilitating the subsequent removal of the dressing. By this means the dentin can be thoroughly sterilized, and the pulp, if at all hyperemic, as it is likely to be, will return to its normal condition.

"Thymol has a peculiar but favorable action on animal tissue, and for this reason it was formerly incorporated in the above prescription. The later formula for phenol compound contains camphor instead of thymol, which enhances the anodyne property of the remedy. At the next sitting, the case giving a favorable history for the interim, the dam should always



be applied, the teeth included sterilized, and the previous dressing carefully removed, when the exposure and the dentin immediately over the pulp can be gently covered with a thin paste made by mixing thymolized calcium phosphate with oil of cloves or eugenol. The paste should be placed on one side of the cavity, and gently coaxed over the exposure in such a manner as to exclude the air. I desire to emphasize the importance of covering the entire dentin immediately over the pulp, as well as the exposure, with this antiseptic and nonirritating paste. By this means we prevent the phosphoric acid of the cement, used to cover the paste and to temporarily fill the cavity, from irritating the pulp. It should be understood that this paste is only intended as a nonirritating, antiseptic covering for the pulp. It does not set. To bring about 'setting,' it would be necessary to use a substance for the powder and an acid for the liquid which react upon each other. This would cause irritation, thus defeating our object. It is best, as intimated

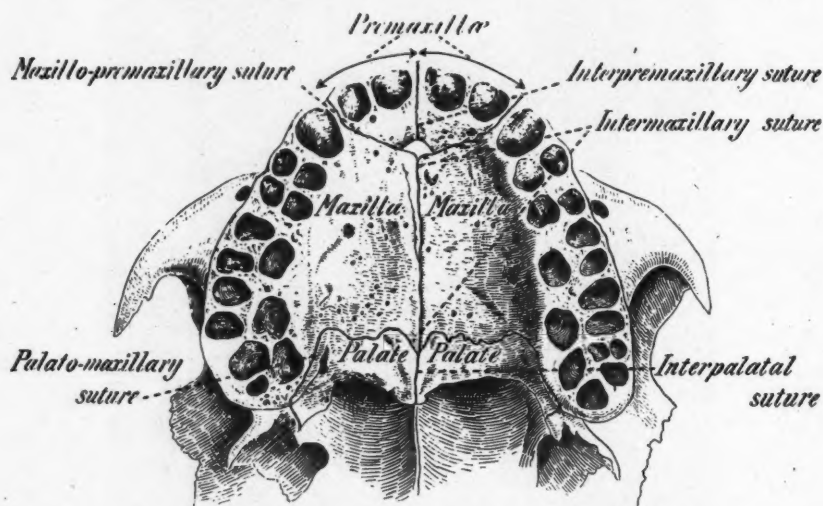


Fig. 57.—View of the palatal surface of the upper jaw, showing the alveoli of the various teeth, and the seven sutures of the roof of the mouth. (Cryer.)

here, to fill the entire cavity with cement and wait for a few months or perhaps a year before inserting the permanent filling or inlay; and even then we should be certain that the vitality of the pulp has been retained, for frequently exposed pulps, under the most careful treatment, gradually die without any objective symptoms. The fact that the tooth has given no trouble should not be taken as evidence that the pulp is alive, for the reverse is too often true—the drugs in the capping material keeping the tissue, though dead, from undergoing decomposition for months and sometimes for years.

“Every advantage should be taken to prevent all possible means of subsequent irritation to the pulp. For this reason the author uses precipitated calcium phosphate instead of calcined zinc oxide, which latter substance is recommended by many writers. The powder (largely zinc oxide) which comes with a package of cement is supposed to be chemically pure. Those who are familiar with the science of chemistry, however, know that

arsenic is found associated in Nature with many of the metals, among which is zinc; and, while it can be done, it is difficult to obtain these metals or their oxides free from arsenic. It is well in those cases where the pulp is not quite exposed, to add a small amount of either aristol or eucophen to the paste. These are iodine compounds and are used as substitutes for iodoform. They act as a mild stimulant to the pulp, thus causing secondary dentin to be deposited, when we have Nature's protection. Both are tasteless, practically without odor, and insoluble in water, but soluble in the oil used as the vehicle for the paste; therefore, only a small amount should be added, for it is possible to overstimulate the pulp, with the result of bringing about a pathologic rather than a physiologic condition."

WHEN TO EXTRACT FIRST PERMANENT MOLARS, DISEASED (Fig. 54)

The dentist is often at a loss when to extract a broken-down first permanent molar and so we record here some rules given by Dr. Lawrence W. Baker, of Boston, for teaching purposes.

*Group 1. Before the Eruption of Twelve-Year Molars.*

Rule 1. When one, two or four six-year molars are broken down and pulps exposed, *before the eruption of the twelve-year molars*, extract the molar or molars in question. In case three six-year molars are so diseased, extract all four molars.

Example 1. When one six-year molar is broken down with exposed pulp (the opposing six-year molar in good condition) *extract diseased molar only*. The erupting twelve-year molar will move forward and fill the space without tipping.

Example 2. When one upper and one lower six-year molar on the same side are broken down and pulps exposed *extract both diseased molars*. The erupting twelve-year molars will move forward and fill the spaces without tipping.

Example 3. When one upper and one lower six-year molar on opposite sides are broken down with exposed pulps *extract both diseased molars*. The erupting twelve-year molars will move forward and fill the spaces without tipping.

Example 4. When both upper or both lower six-year molars are broken down with exposed pulps *extract both diseased molars*. The erupting twelve-year molars will move forward and fill the spaces without tipping.

Example 5. When three six-year molars are broken down and pulps exposed *extract all four six-year molars*, though the fourth molar be in good condition. The erupting twelve-year molars will move forward and fill the space without tipping.

Example 6. When all four six-year molars are broken down and pulps exposed *extract all four six-year molars*.

*Group 2. After the Eruption of Twelve-Year Molars. (Fig. 53.)*

Rule 2. When one or more six-year molars are broken down and pulps exposed, after the eruption of the twelve-year molars, save six-year molars

if possible; otherwise, extract unsavable molar or molars and supply the full mesiodistal diameters. This procedure will prevent tipping of twelve-year molar or molars.

## CHAPTER VI

### TREATMENT OF PULPS IN DECIDUOUS TEETH

The pulp appears as a "soft, thin, flattened, whitish organ, with, occasionally, lines of pink running in a longitudinal direction if removed from its bone cavity before postmortem changes occur." (Hopewell-Smith.)

#### *Function of Deciduous Pulps.*

1. Developmental.
2. Resorptional.

*Developmental.*—The pulp of a deciduous tooth has the same developmental functions as the pulp in a permanent tooth. It builds dentin in the same manner. It furnishes nutrition and enervation to the surrounding dentin the same as the pulp of a permanent tooth.

*Resorptional.*—It differs from the pulp of the permanent tooth in that it possesses the power to tear away the formed roots of the deciduous dentition. This is probably done by some secretion carried by the blood stream.

#### PATHOLOGY

As caries progresses the pulp is encroached upon until finally involvement takes place. The pathology of involved deciduous pulps is the same in sequence as in a permanent tooth. The clinical symptoms usually present from septic conditions are:

1. Exposed pulps from caries;
2. Dead pulps and septic conditions surrounding the tooth.

According to Endelman and Wagner, the following conditions are usually present as a result of the last condition:

- "1. Tenderness of the tooth to percussion and upon mastication.
- "2. Pain.
- "3. Swelling.
- "4. Increased redness of the gum overlying the affected tooth and adjacent areas.
- "5. Tenderness or pressure on the gums over the apical region of the tooth.
- "6. Looseness and protrusion of the tooth.
- "7. Rise in temperature.
- "8. Constipation.
- "9. Feter of breath.
- "10. General malaise.
- "11. Headache."

The chronic abscess condition is not as frequently present as the acute condition. Therefore, we have to decide whether the tooth is treatable or



not. The following conditions must be considered before arriving at a conclusion:

1. Age of child;
2. Whether the child is tractable;
3. Amount of destruction of crown portion of tooth;
4. Amount of resorption and shedding time of tooth;
5. Systemic conditions of child;
6. Pathology present, extent and type.

*Secondary Involvements.*—The cervical glands in a child are very quick to register any infection occurring around the teeth or jaws, by swelling and tenderness. If this condition is present it is necessary to proceed at once to find the cause. The child's jaw being of a bony honeycomb-like structure allows the infection arising from a tooth to invade the surrounding area very rapidly. The cervical glands enlarge and are liable to break down if proper attention is not given at once.

#### TREATMENT OF DECIDUOUS TEETH WITH ABSCESS PULP INVOLVEMENT

*A. Pulp Exposure from Caries.*—If the pulp is exposed from caries it is necessary to devitalize the deciduous pulp. Seal in the devitalizing agent which is applicable to the case in hand. After removal of the pulp proceed with root canal filling as hereafter outlined.

*B. Pulp Dead, but Periapical Tissues as yet Uninvolved.*—By extension of caries the pulp has become involved and the pulp dies, but the patient arrives for treatment before the periapical area becomes involved.

1. Place 20 per cent Formo-Cresote or Buckley's Formo-Cresol in the chamber on cotton and seal in with cement for twenty-four hours.

2. If possible at the next sitting adjust the rubber dam or in some manner isolate the tooth. Carefully broach out the contents of the pulp chamber and also part of that of the canals. Care should be exercised not to go too far apically at this sitting. Seal in a treatment of 5 per cent Formo-Cresote.

3. Isolate the tooth. Open tooth and clean out contents of canals, but do not insert the broach any deeper than the length of the root, keeping in mind the resorption ages of these roots. *A safe rule is never to go more than three-eighths of an inch into a deciduous canal.* Seal in a treatment of 5 per cent Formo-Cresote.

4. If the tooth seems to respond favorably to the previous treatments the tooth is now ready to receive a root filling.

#### *C. Pulp Dead, Acute Involvement of Periapical Tissues.*

1. Clean out the chamber and upper parts of the canals. Seal in Formo-Cresol or 20 per cent Formo-Cresote. Leave one day.

2. Isolate the tooth. Clean out canals and place another dose of 20 per cent Formo-Cresote in chamber. Leave one day.

3. Isolate the tooth. With 5 per cent Formo-Cresote treat the tooth until the swelling and looseness of the tooth subsides. The number of treatments are determined by the manner in which the tooth reacts.

4. Fill the canals with some antiseptic paste. Inspect tooth at intervals for awhile to determine the success of the treatments.

*D. Pulp Dead, Chronic Involvement of Periapical Tissues.*—When a chronic pathologic condition exists around a deciduous tooth, I believe it is best to remove the tooth. When this is necessary a space retainer may be placed.

#### FILLING MATERIALS FOR DECIDUOUS ROOT CANALS

*A. Bismuth Formic Iodide Dusting Powder* forms the basis for a very fine canal filling. This paste was devised by Dr. Julio Endelman.

4 parts zinc oxide.

1 part bismuth formic iodide dusting powder.

2 drops of oil of eucalyptus.

Setting time approximately 6 to 8 minutes.

Carefully mix the powders together and then incorporate them with the oil of eucalyptus. Work this paste in with any suitable root canal instruments.

*B. Formo-Cresol and Thymolized Calcium Phosphate.*—Thymolized calcium phosphate powder mixed with a drop or two of Formo-Cresol is a very good paste for filling deciduous roots.

*C. Gutta-Percha.*—Dr. Buckley says: "After the pulp is removed, all that is necessary to fill the root is to flood with chloroform and eucapercha compound, and fill the entire cavity with gutta-percha. It is supposed by some dentists that resorption of the roots does not take place when the pulp is destroyed. This supposition is wrong. The root may not be destroyed as readily as though the pulps were alive, but that resorption does take place, has been clinically demonstrated in the author's practice. Hunt, of Indianapolis, was of the opinion that the process here involved is one of absorption rather than resorption and that the loss of tooth-root is usually due to the advances of the permanent teeth."

*D. Xeroform Paste.*—Dr. J. E. Gurley of San Francisco, recommends the following paste for filling deciduous root canals:

Zinc oxide	15.00 parts
Xeroform	5.00 parts
Phenol	gtt. XXX
Glycerin	q. s.

## CHAPTER VII

### NUTRITION

The subject of nutrition has been forced upon the dental profession by the remarkable researches of McCollum, Percy Howe, Marshall, and others. It is now understood that diet and nutrition underlie the problem of dental caries.

In teaching dental students it is necessary to give them some fundamental idea of the subject with the hope that they may go more deeply into it after

completing their college work. So I will attempt only to properly relate this subject to chair side operative dentistry, and will not go into minute details. The question of what earnest patients shall be told regarding the children's diet is a baffling one, and yet the new generation of dentists must help solve this problem.

McCollum and his coworkers have perhaps more nearly unified and standardized the salient points, and so I shall start with their

#### DIETARY HYPOTHESES

To be a complete, well-balanced diet, the following four principles must be observed.

1. There must be an adequate amount of protein of good quality.
2. There must be included a suitable amount of some utilizable source of glucose. Starch, cane sugar, malt sugar, milk sugar, the dextrines, or glucose represent the source of this necessary nutriment.
3. There must be a suitable combination of nine inorganic elements in optimum content. These are calcium, magnesium, sodium, potassium, chlorine, iodine, phosphorous, iron, and sulphur.

Sulphur is supplied to the tissue in the form of cystin. Cystin is a sulphur containing amino-acid. The other elements are made available in chlorides, phosphates or the alkali and alkaline earth metals.

4. There must be a correct amount of each of three, and possibly four organic substances, the chemical natures of which we know nothing.

These substances are commonly known as vitamins, or

1. Antiphthalmic or fat-soluble A, which is present in butter fats and egg yolk.
2. Antineuritic or water-soluble B, which is found in raw milk, unpolished rice, whole wheat, etc.
3. Antiscorbutic or water-soluble C. This substance is present in orange juice, lemon juice, tomatoes, leafy vegetables.

The absence of fat-soluble A in a dietary leads to a severe and fatal eye condition called xerophthalmia. It is also believed that the absence of fat-soluble A is an etiologic factor in rickets.

The absence of water-soluble B in a dietary in time permits a peripheral neuritis to occur. In man it is known as beri-beri, and is very prevalent in Japan, China, and other oriental countries.

The third substance known as water-soluble C is a protective against scurvy.

#### XEROPHTHALMIA

This is an eye disease of nutritional origin. The condition arises as a result of a lack of fat-soluble A in the dietary. But it almost always accompanies some other deficiency disease or some complication of it.

#### BERI-BERI

Beri-beri is a peripheral neuritis caused by a lack of water-soluble B in the food. It occurs in wet and dry form. Those suffering from dry beri-beri



present an emaciated appearance. A dropsical condition represents the wet type.

#### SCURVY

This disease often attacks Arctic explorers and in early sailing days was common among sailors and soldiers who lived on a protracted diet of canned and stored foods, without fresh vegetables or fresh fruits.

The symptoms are loss of weight, anemia, paleness, weakness, and loss of breath. The gums are swollen, bleed very easily, and present an ulcerous condition. The teeth become loose and may drop out.

#### RICKETS

Rickets is a disease of infancy and early childhood. It is characterized by gross bone deformities due to calcium starvation. The nutritional factor is a concomitant condition. The symptoms are nervousness, irritability, apathy, general malaise. The muscles and ligaments are loose and flabby. The child may perspire freely, head sweats may occur and there may be a marked anemia. The child usually has a retarded dentition. The abdominal and intestinal muscles are weak, allowing a distention of the abdomen commonly known as pot-belly.

The entire bone structure may be affected. The bones of the skull and ribs are affected, resulting in deformed chests and bent and swollen long bones. Bow legs and knock knees are resultants of soft bony structures. Death may occur from rickets, but usually it occurs from some secondary infection such as bronchopneumonia. The lowered resistance and the deformed chest invites lung complications. The dietary factor fat-soluble A is thought to have something to do with the incidence of rickets.

Another factor which enters into this problem is the ratio between the calcium and phosphorus contents in the diet.

#### PROTECTIVE FOODS

It has been found that certain foods are protectors. That is, if taken in sufficient quantity and of good quality there need be no nutritional diseases of the above types.

The protective foods are milk and the leafy vegetables, such as lettuce, spinach, celery, cabbage, unmodified cereals, etc. Orange juice, lemon juice, lime juice, tomatoes, onions, and raw potatoes are protectives against scurvy.

#### DIET

It is not an easy matter to convey in a few words to an inquiring parent the essentials of diet. But the dentist, being a specialist of the masticatory organs, must know at least the fundamentals.

During the preschool age vegetable soup should be a frequent article of the diet. Fresh vegetables have vitamins in them which are necessary for growth. Tomatoes are the only vegetable which can be canned and yet will preserve these qualities.

For breakfast bits of hard toast for the child will not only assist the cleaning of the teeth, but stimulate growth.

Fruit juices, and particularly orange juice will act as a salivary stimulant.

Whole wheat bread, or coarse breads should be substituted for white bread as the refining of flour removes the germ of the wheat kernel which contains the vitamins.

An apple eaten after lunch will act as a salivary stimulant and also mechanically clean the teeth by virtue of its fibrous structure.

The candy problem is a moot question, but all agree that if any candy is eaten it should be given after a meal, instead of before, because it will spoil the appetite for other foods if eaten before meals.

A quart of milk a day is the average amount for a growing child. Some children do not seem to take milk easily. I believe that when any dietary difficulties which call for careful observation arise, the child should be referred to a pediatrician. It is not in the dentist's province to go into fine physiologic dietary analysis. It is our business to know the fundamentals of diet and our duty to call attention to gross dietary misuse. Further than that, the problem belongs to the pediatrician. I recommend "American Home Diet" by McCollum and Simmonds for general instruction on balanced diet.

(To be continued.)

#### IRREGULARITY OF THE INCISOR TEETH CAUSED BY TWO SUPERNUMERARIES, WITH RESULTS OF TREATMENT\*

BY A. T. PITTS, M.R.C.S., L.R.C.P., L.D.S.

THE patient, Blanche M., was seen by me at the dental department of the Hospital for Sick Children in October, 1919. She was then 11 years of age. She was brought because the maxillary central incisors had not erupted. The lateral incisors were present and in normal position, and there was a wide gap between them. No impressions were taken on this occasion. The patient was next seen in February, 1920. (Fig. 1.) The right central had erupted labially to the lateral and completely overlapped it. I decided to remove the lateral and allow the central to come into its place. The right central gradually came into good alignment, but there was no sign of the left central. I next saw the patient in October, 1920; the right central was then in place; the left central had appeared and was partly erupted. It was badly placed, the crown was twisted through a right angle with the lingual surface directed mesially and the long axis of the root very oblique. There was a supernumerary tooth on the left side on the mesial aspect of the left central, while another supernumerary tooth was just commencing to erupt internally to the right central. The left canine was badly placed being external to the

\*From the *Transactions* of the British Society for the Study of Orthodontics.

arch. (Fig. 2.) I extracted the left supernumerary and the left canine, an unorthodox method of treatment so far as the canine was concerned, but I did not feel justified in disturbing the alignment by removing either the lateral or first premolar. The patient was next seen in February, 1921; the right supernumerary had erupted sufficiently to be easily extracted. (Fig. 3.) Both supernumeraries had somewhat tuberculated crowns with short conical roots. The left central had erupted further; it did not look a very promising tooth for regulation, both by reason of its torsion and obliquity, but I thought that immediate regulation to correct the torsion might be worth trying, since, even if it failed the only alternative seemed to be extraction and a denture later. A splint was made beforehand consisting of bands to the right central



(Pitts Case.)

and left lateral with a bar passing between them. Under novocain anæsthesia the left central was twisted round through a right angle. No attempt was made to correct the infra-occlusion. The tooth was ligatured to the bar with brass ligature wire. I saw the patient a week later and found the tooth quite comfortable and fairly firm. There had been no pain, the gum was slightly red but there was no suppuration. The apparatus was removed a month later. The tooth was then quite firm and not discolored. Thermal tests gave a doubtful response and suggested that the pulp was dead. (Fig. 4.) It seemed to me that having got thus far, I ought to try and get the left central into better position by correcting both the infra-occlusion and the obliquity of the root. In July, 1921, as a preliminary the frænum which extended on to the free border of the alveolar ridge, was dissected away under local anæsthesia.



Bands were made to fit the right central and canine, and a bar soldered labially so as to get the greatest resistance. The left central was banded and a post soldered to the band extending parallel to the root as high as the lip sulcus allowed and with the end bent back distally. A hook was soldered to the band while the distal end of the bar on the right central was allowed to project free so as to act as a spur. From the fixed point on the right two elastics were attached, one going to the extremity of the post on the left central band and one to the hook on the band itself. The apparatus worked very well; the infra-occlusion was completely corrected while the obliquity was undoubtedly lessened. Owing to the holidays intervening, too great a movement occurred and when I saw the patient next in September, 1921, the left central was slightly inside the bite. This was easily corrected, and the next figure shows the result (Fig. 5). The patient was finally seen at hospital in February, 1922. No further treatment has been carried out, and after a year there has been no relapse. The left central reacts quite well to thermal tests but less briskly than the other incisors. There is no sign of discoloration of the tooth. It is quite firm and the gingival margin is intact. The tooth



Fig. 5.

is still rather oblique, but the appearance of the patient who is present is better than the final model would indicate, and I feel that it would be an unwise adventure to attempt more.

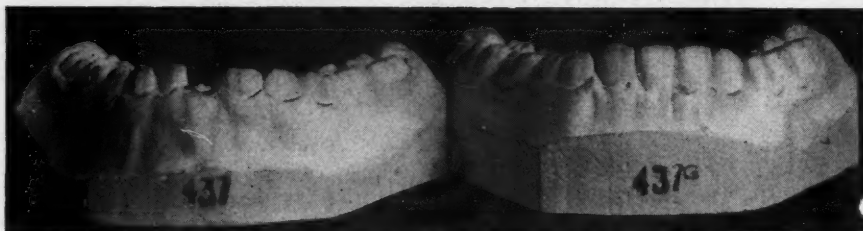
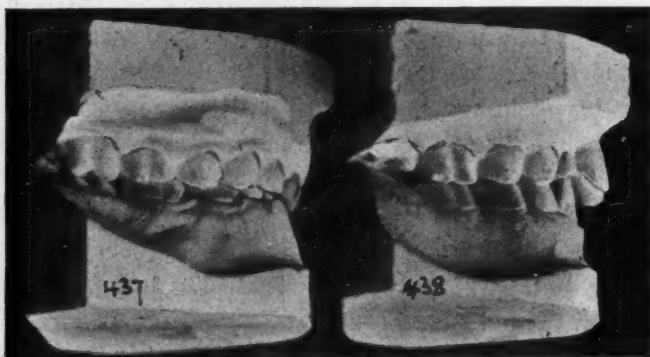
There are two interesting features in this case. Firstly, the cause of the irregularity. Supernumerary teeth are commonest in the incisor region and often cause malocclusion. It is distinctly uncommon to find two such teeth present, while the deformity which was produced was very severe. Secondly, it is interesting to find that the left central still retains its vitality after having been twisted through a complete right angle, while the periodontal membrane which must have been completely ruptured by the immediate regulation, proved equal to the considerable strain involved in the gradual regulation carried out only four months later.

The following casuals were given:

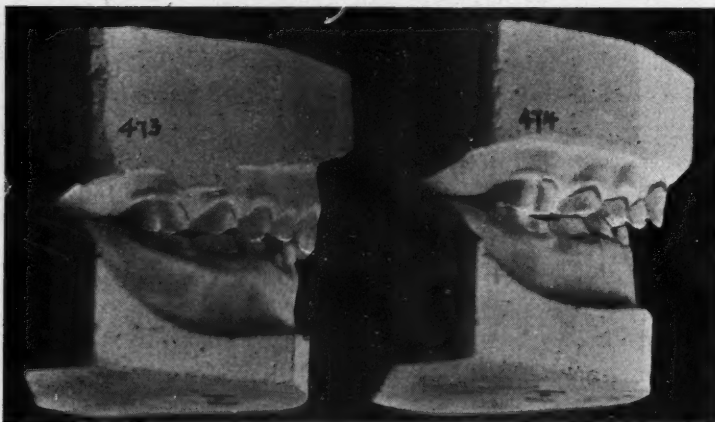
*Mr. Warwick James* demonstrated his method of dealing with cases where the bite is too close (described in a paper read before the British Society for the Study of Orthodontics, November, 1921). The method consists of the use of a bite plate allowing certain teeth left free, usually the first

permanent molars, to rise until the bite is propped open. The most frequent type of case is where the occlusion is postnormal and the maxillary arch narrow, when expansion of this arch is carried out at the same time by the use of a jack screw (Badcock type with an additional guide) inserted in the bite plate.

Many of the members had difficulty in distinguishing the method de-



Mr. Northcroft's Case No. 1.



Mr. Northcroft's Case No. 2.

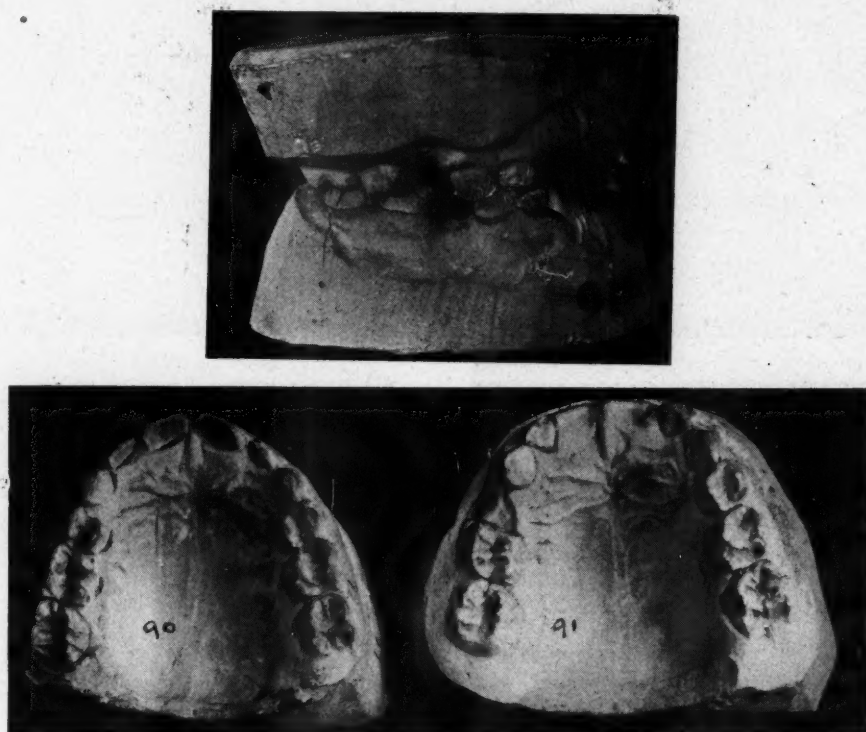
scribed by Mr. James from that formerly employed when a simple bite plate was used. The most important point in the treatment by Mr. James' method comprises the fixation of the bite, when corrected, in such a manner that the teeth which have been allowed to rise cannot be depressed. In order to permit the premolars to rise to the same occlusional level as the molars, the same plate can be cut away over the second molar on each side, or perhaps better still by making a simple bite plate with the molars occluding and the front

part of the plate engaging the incisors and canines, the premolars being left free.

A certain number of members seem to have failed, as was usually the case with the old bite plate, by not managing the proper distribution of pressure, and had permitted the molars to be depressed again. Many of the associated malpositions may become corrected in the process, but not infrequently additional treatment is needed.

*Mr. Harold Chapman* demonstrated the soldering and bending of auxiliary springs as practiced by *Dr. Mershon* of Philadelphia, the whole operation for one spring occupying one minute.

Cases occur from time to time where the anchor bands with vertical



Mr. Northcroft's Case No. 3.

tubes attached are cemented on the teeth and it is desired to obtain a model with those or similar tubes in correct position on it in order to repair the arch or make a new one. *Mr. Chapman* demonstrated by means of models, etc., the method described by *Dr. H. A. Pullen* of Buffalo, of obtaining such a model of the teeth with the vertical tubes in position on it exactly as they are in the mouth.

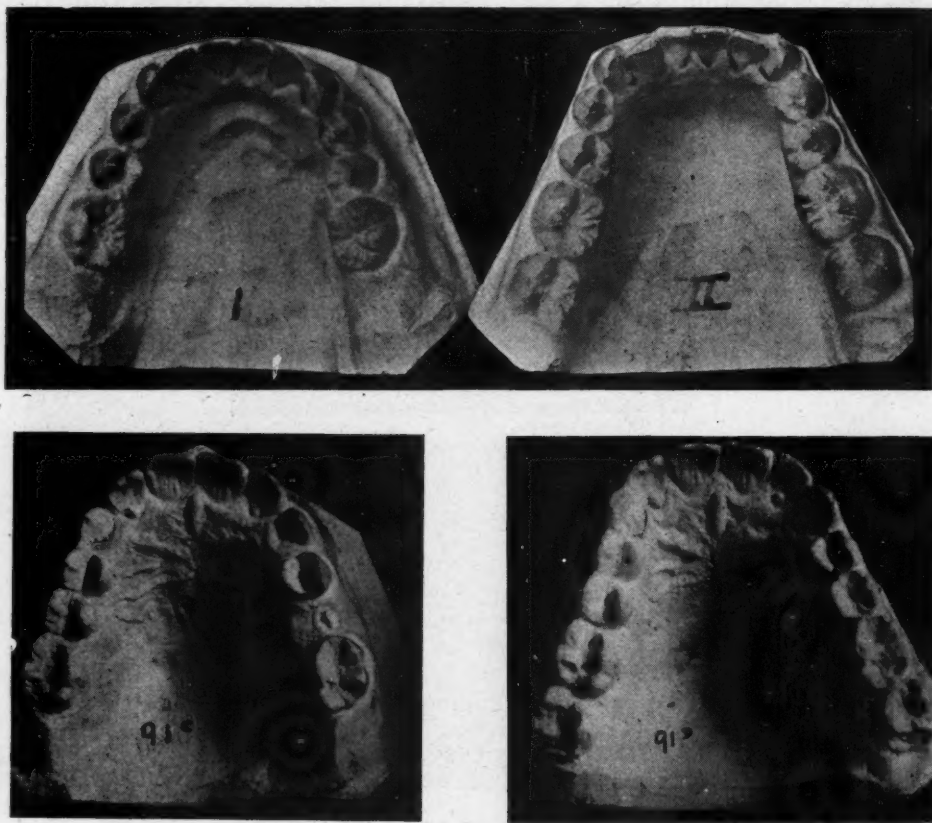
*Mr. Chapman* also showed models of a case in which the lower molars were inadvertently moved distally when it was desired to move the incisors forward. In the original condition the overbite was unusually great, the entire lower incisors and a portion of the corresponding gingiva being covered by the upper incisors, when the maxilla and mandible were brought into their closest relation.



In all probability the distal movement of the lower molars was brought about by the resistance offered by the upper incisors to forward movement of the lower incisors, combined with the fact that the appliance moving the upper incisors forward was not doing so as rapidly or efficiently as the lower appliance would have moved the lower incisors forward had there been no unusual resistance to such movement.

#### TWIN CASES

*Mr. George Northcroft.*—I add three to the other twin cases shown—two male pairs and one female pair. These all show individual varieties.



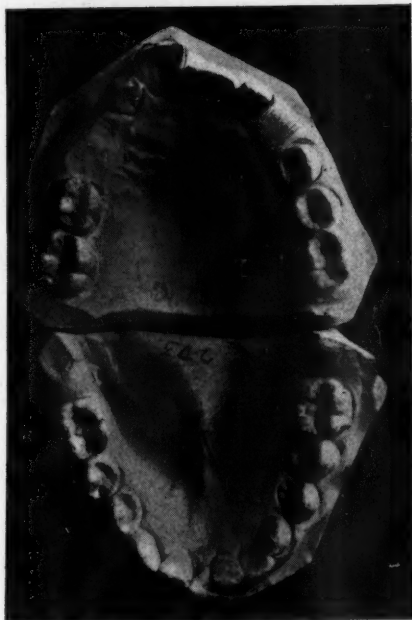
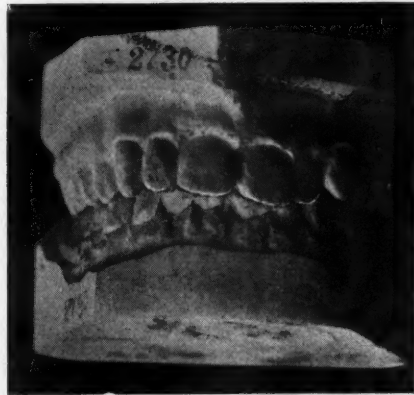
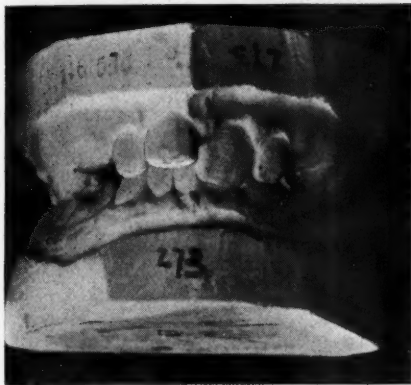
Mr. Northcroft's Case.

Case 1, male twins, age 7. Show teeth in different stages of eruption; one decidedly postnormal; the other marked overbite, slightly postnormal, has central and lateral geminated (437), which has no effect on 12 as shown in model 437G.

Case 2, male twins, age 6 years 3 months. Both extremely well developed upper arches. Neither have erupted first permanent molars (473, 474). Eruption in one case slightly in advance, one far more distal in occlusion with greater overbite and protruding incisors. The two cases might be said to foreshadow Class I, division I and II, respectively.

Case 3, female twins, age 7. Both normal anteroposteriorly. Periods of eruption differ (91) in occlusion. In one right lower first premolar (91C,

91D) space lost by early extraction of septic D. Space apparently regained, but really at sacrifice of imbreccation of incisors. (Models marked I and II.) The other child never treated. Model 90 and 91, marked difference in shapes of palates. Model 91D compared with 91C shows an interesting collapse at 16.8 of the untreated upper arch after puberty. Is this due to some disharmony of the harmonies?

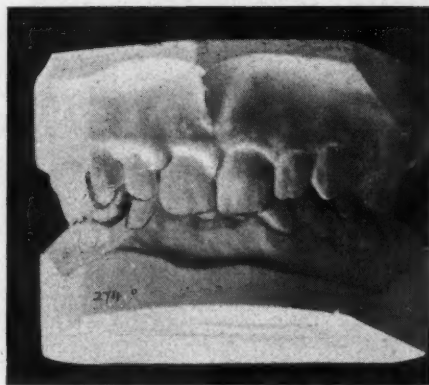


Mr. Harold Chapman's Cases.

*Dr. Harold Chapman* presented the models of two boys, aged 12 years and 8 months. Both cases were examples of Angle's Class II, Division II, although there was great prominence of one central upper incisor in both cases, but in one it was the right tooth and in the other the left. The overbite in both cases was excessive, markedly so in one to the extent that the lower gingival margin was well covered by the upper incisors in the position of occlusion. In addition, there was crowding of both arches in both cases,

though this was more severe in the one where there was the more overbite. This latter case was treated by extraction of the two first upper premolars and the left lower lateral. The other case was treated by retention of all the teeth, but in neither was the distal occlusion treated.

Models were shown of the cases after treatment (Cases 273 and 274), exhibiting good alignment of the teeth at the age of 16.



Mr. Chapman's Case.

*Mr. Cale Matthews* presented a case at 6 years 9 months. Breast fed for 4 months, when lactation ceased suddenly owing to shock, and the child was artificially fed. She is a robust healthy child, the third of four who do not present the same robust condition and who were all entirely breast fed.

The point to be observed is the complete temporary dentition at this age without the eruption of the first permanent molars.

*Mr. Northcroft* thought *Mr. Cale Matthews'* case an interesting one, but

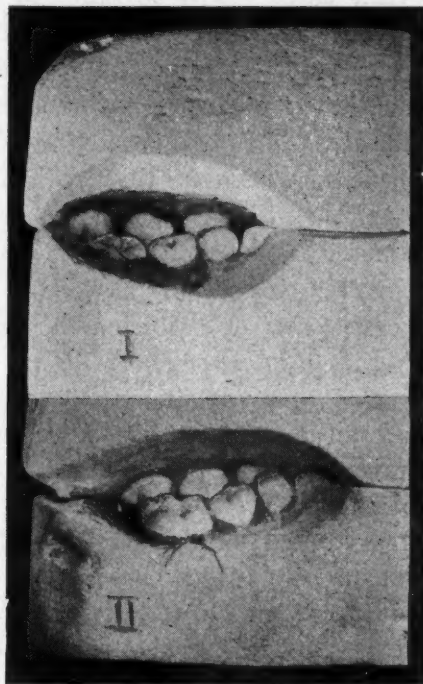


it could hardly be called "normal," as there was undoubted proclination of the upper incisors and a lack of spacing in both the upper and lower jaws which should occur at this age. The noneruption of the 6 year old molars at 6 years and 9 months was rare, but by no means unique.

*Mr. W. T. May.*—I have here models showing the occlusion of the temporary molars of two twin boys. You will see that they present an exactly similar irregularity, viz.:



Mr. Cale Matthews' Case.



Mr. W. T. May's Case.

The second lower left temporary molar bites lingually to the upper in each case. The occlusion in other respects is normal.

In my experience this simple irregularity is not at all common in temporary teeth.

The boys are extraordinarily alike in general appearance and in each case it has been necessary to fill a crown cavity of exactly the same size in the right upper first temporary molar, obviously due to a fault in the development of each tooth. All their other teeth are sound.

## DENTAL NOMENCLATURE

### A REPORT OF THE COMMITTEE OF THE EASTERN ASSOCIATION OF THE GRADUATES OF THE ANGLE SCHOOL OF ORTHODONTIA

EVER since the importance of the mechanical relationship between the upper and lower teeth was recognized there have been many attempts made to explain the entire concept by means of a definition. Commendable as such attitude may be its value can be measured only by the end attained. A distinctly progressive step so far registered and universally recognized, is the designation of this phenomenon by a single term. The word "occlusion" has hitherto served to convey an idea the significance of which is paramount in the realm of orthodontia. The appreciation of this significance is, however, inseparably associated with an underlying condition that renders the conception of occlusion in general somewhat difficult. Being based on a thorough knowledge of dental anatomy, both comparative and human, it entails to a certain extent some information relating to its nature and manifestation. The specialist in orthodontia having had to undergo a course of training for the purpose of a more thorough understanding of the relationship of the natural organs constituting the masticating apparatus, must be well grounded on the intricacy of the details involved in the problem of occlusion. To him it means, or ought to mean, one of the basic principles of his vocation. It therefore requires an infinite amount of study to overcome the difficulties involved in the intricacies of occlusion, and master its detail. A thorough appreciation of its significance is consequently attained whether it is realized or not.

In the evolution of prosthodontia the realization of the fact that occlusion is of fundamental importance became apparent. The approach to this fundamental truth occurred in a different way. Since the difficulties involved in prosthodontia were assumed to be due to a lack of recognition of the natural way in which the teeth of the two jaws meet, it was thought that by correcting this error a better adaptation of the artificial substitutes could be gained. Mechanical principles for overcoming these difficulties were devised. The teeth in an artificial denture had to be so placed as to obviate their displacement in the act of mastication. With this end in view the dentures must be constructed in such a way as to be retentive regardless of any position the mandible may assume in the act of mastication. Principles and rules were formulated to meet these demands. But in the formulation of these principles which are essentially of a mechanical nature, the prosthodontist has gradually drifted into the realm of certain difficulties that seemed to be mutually shared by the orthodontist; namely, the establishment of occlusion. The prosthodontist, however, overlooks the fact that the occlusion he is concerned with is a device of his own making, while that of the orthodontist is a phenomenon based on the recognition of the natural

factors entering into its composition. By this it may be realized that the concept of occlusion is not the same in the estimation of the prosthodontist as it is in that of the orthodontist.

A similar course of events led to the erroneous assumption that the problems of the prosthodontist and orthodontist are commonly shared also by the periodontist. Owing to the discovery that a certain form of occlusion is the cause or one of the causes of periodontoclasia,—we hope that this is the correct term newly proposed—the conclusion seems to have been reached that periodontia, prosthodontia and orthodontia have a common cause. As a result, definitions have recently been introduced with the end in view of satisfying the so-called common needs of these three specialties.

The committee on terminology desires to call special attention to the definitions pertaining to occlusion. This is done not because it has any grievance, but rather to avoid confusion. If it is not too late it is hoped that by taking a definite stand it may be possible to head off the endorsement of these definitions and avoid subsequent misunderstanding. At a recent dental meeting these definitions were already quoted by an orthodontist as a matter of course. If this procedure is not intercepted at once its effects will curb orthodontia in its true mission. Instead of striving to elevate the dental intelligence to a higher plane it will be drawn down to that level of indifference in dentistry that blocks progress and breeds confusion.

It is therefore an earnest matter that we wish you to consider now; that is, first to pass judgment on the newer definitions on occlusion, and secondly to adopt or reject them. The definitions proposed by the Committee on Dental Nomenclature of the American Dental Association, are as follows:

**Occlusion.** The contact of the teeth of both jaws when closed or during those excursive movements of the mandible which are essential to the function of mastication.

**Functional Occlusion.** Such contact of the teeth of both jaws as will provide the highest efficiency during all the excursive movements of the jaws which are essential to the function of mastication, without producing trauma.

**Traumatic Occlusion.** Such contact of the teeth of both jaws as would induce trauma during centric or eccentric occlusion, because of malposition of the teeth or disarrangement of the occlusal planes.

**Centric Occlusion.** Contact of the teeth when the jaws are closed in the position of rest.

**Eccentric Occlusion.** Contact of the teeth in the excursive movements of the mandible.

**Malocclusion.** Such malposition of the teeth, as will interfere with the highest efficiency, during the excursive movements of the mandible, which are essential to the function of mastication. This would not necessarily indicate lack of occlusal contact when the jaws are closed, nor would it always indicate traumatic occlusion.



In defense of these definitions, the Editor of the *Dental Items of Interest* (Vol. xlv, No. 9) who is also a member of the "Committee on Dental Nomenclature," makes a strong plea "for a greater use of logic by dental writers." For this purpose he calls attention to a paper by Dr. G. F. Logan to which he "respectfully directs the attention of all students who believe that logic should be a fundamental principle in scientific research and scientific declaration." Of interest in this article are the so-called logical deductions. It is contended that "The modern prosthodontists, orthodontists and periodontists study the contactual relations of the teeth, not alone in a state of stasis, but likewise in all the excursive movements of the mandible which are essential to masticatory function;" and "They need a word to designate this functional contact of the teeth." He asks the question, "Why coin a new word? Why not broaden the significance of the word occlusion?" It is questionable whether such a deduction is really logical. It may also be questioned whether such logic is really fundamental.

While many definitions from authoritative dictionaries are quoted in defense of the definitions given above, it would seem to be a logical step to consult those dictionaries on the significance of a definition for the term *definition*.

The New Standard Dictionary defines the term definition as "The act or product of marking out, or delimiting, the outlines or characteristics of any conception or thing; determining the elements, attributes, or relations of one object so as to distinguish it, whether as an individual or one of a class, from other objects." According to this, a definition should aim to *delimit the outlines or characteristics of the thing defined so as to distinguish it* from other things. In other words, the meaning of a definition in order to be efficient and effective must be *narrow*, and *not broad*. In contrast to this the editor of the *Dental Items of Interest* asks, "Why not broaden the significance of the word occlusion?" Since he presumably answered it in the affirmative, the broadening was done.

Whether the defence cited above is sufficient to warrant the infliction upon the profession of the confusing statements entailed in these definitions remains to be seen. From the standpoint of "scientific research and scientific declaration" no amount of logic can correct the misconceptions involved in the definitions as they stand. The misleading feature, for example, in the definition of "occlusion" is apparent when "the contact of the teeth" is associated both with the closed jaws and with "the excursive movements of the mandible which are essential to the function of mastication." It needs no stretch of the imagination to realize the fact that in the masticatory movements of the mandible, there are intervals when the teeth cannot possibly be in contact at all. The same error is also made in the definition of "Functional Occlusion." In this definition, moreover, another association of ideas is made that seems rather irreconcilable. Thus, "Such contact of the teeth as will provide the highest efficiency," is spoken of, "without producing trauma." The question arises, would it be possible to have "the highest efficiency" in a trauma producing dentition?

Another misconception is revealed by the definition of "Centric Occlusion." This term is intended to designate the "Contact of the teeth when the jaws are closed in the position of rest." It is generally known that when the jaws are in the position of rest, *the teeth are not in contact at all*. "In the position of rest" the mandible is suspended, as it were, by the negative atmospheric pressure within the oral cavity and by the tonicity of the muscles attached to it. "Eccentric Occlusion" is similarly erroneously defined as "occlusion." "Malocclusion" though not ill defined is, nevertheless, confused by the supplemented idea that it (the definition) "would not necessarily indicate lack of occlusal contact." This explanation (?) would lead one to infer that *in no malposition of the teeth is there a lack of occlusal contact*. It need not be specially mentioned that in the range of malocclusal manifestations there are such positions of the teeth that could under no circumstances be considered as not lacking occlusal contact. Teeth in infraocclusion furnish the proof for this. "Traumatic Occlusion," however, is a term with which exception must be taken for a different reason. The term itself seems to be anomalous. In medical literature the term "traumatic injury" is often met with. By it an injury is understood that was caused by violence. It would be ludicrous to imagine on analogous reasoning that an occlusion happened that was likewise produced by trauma. Trauma is defined as "Any injury to the body caused by violence; also, the violence that causes it." Traumatic, is defined as, "Of or pertaining to trauma; as traumatic tetanus, or traumatic fever." (The New Standard Dictionary). In dentistry there may be traumatic pericementitis, or traumatic periodontitis, but, *traumatic occlusion*,—there is no logical ground for defending it even by the most carefully constructed definition. If such a term must be used, why not call it *trauma producing malocclusions*? The teeth must necessarily be in malocclusion to produce violent injury to other parts or tissues, otherwise it is unlikely to happen.

There are two fundamental points which were not given sufficient consideration in the deliberations incident to the framing of the definitions. One is the irreconcilability of the concept of occlusion as entertained by the periodontist, by the prosthodontist and by the orthodontist; the other is the indiscriminate combination of the ideas involved in occlusion and in mastication. The first has been dealt with at the outset of this report; the second will be dealt with now. It must be contended that under no circumstances can occlusion and mastication be considered as synonymous. Mastication is a physiologic process that may be divided into several phases. Occlusion is but one of the phases of mastication. This phase transpires during the act of mastication when the teeth reach the terminal position in the motion necessary for the trituration of the food, just before the jaws are about to open again for a repetition of the stroke. The occlusal position of the teeth in the process of mastication may be likened to the systolic phase of the cardiac cycle. The heartbeat is one complete single act, but it is composed of two distinct events: diastole and systole. The significance of each of these phases must be recognized in a thorough understanding of the

function of the heart. Similarly the occlusion of the teeth and the movements of the mandible must be clearly distinguished if a thorough understanding of the function of mastication is to be obtained.

Viewing the situation from this aspect, it may be realized how utterly futile it is to attempt to combine the idea entailed in occlusion and that related to mastication in one single term. That this is the intent of the "Committee on Dental Nomenclature" becomes evident when the definitions pointed out are carefully studied. The evidence furnished by the defence in the *Dental Items of Interest* (Vol. xlv, No. 9) leaves no shadow of doubt as to the correctness of this interpretation. As quoted above, the editor states clearly: "The modern prosthodontists, orthodontists and periodontists study the contactual relations of the teeth, not alone in a state of stasis, but likewise in all the excursive movements of the mandible which are essential to masticatory function." Therefore, it is asked: "Why coin a new word? Why not broaden the significance of the word occlusion?" It may likewise be asked why have different terms for the phases involved in the cardiac cycle. Why not broaden the significance of the term systole? A more adequate knowledge of the processes involved will furnish the answer.

In view of these facts it would be appropriate for this association to take an active interest in matters of this sort. It is inadvisable to stand by complacently and allow others less competent to lead—or rather mislead—in matters that are of vital concern to us. A tendency that would place orthodontia in a position of trailing along in the bypaths of prosthodontia or any other specialty, for that matter, must be stopped. That such a tendency is becoming more apparent is not difficult to ascertain. Not very long ago a prosthodontist read a paper before an orthodontia society. In gathering his material a questionnaire was sent out to various orthodontists for certain information. In this questionnaire the assumption was revealed that the problems of the prosthodontist and of the orthodontist were identical. Moreover, it was hinted that by the adoption of the schemes so successfully employed by the prosthodontist, the orthodontist would find the panacea for all evils. The proposition of the definitions alluded to, is another manifestation of this attitude. The indifference assumed by the orthodontists in general may be construed as a tacit approval of this procedure as a whole. Are you willing to submit to a situation that will inevitably lead to a state of misunderstanding and confusion? Then continue the present attitude of inactivity. If not, then assert yourselves, and enter a protest against the methods of imposing terms and definitions that will reflect discredit on the intelligence of orthodontists. As members of the American Dental Association, we have a right to demand that in the constitution of a committee on nomenclature a representative of orthodontia, chosen by the specialty as a whole, should have a voice and a directing or guiding influence in the formulation of terms that to us are basic in principle and fundamental in practice.

DR. H. K. HATFIELD  
DR. H. E. KELSEY  
DR. A. LEROY JOHNSON  
DR. B. W. WEINBERGER  
DR. M. HELLMAN, CHAIRMAN.



## CLINIC\*

BY C. E. BYINGTON, D.D.S., CHATTANOOGA, TENN.

IN briefly giving a report of this Clinic, I hope to be sufficiently brief and explicit enough to be understood, for I know that none of us wants to ramble through pages of matter to procure a small substance.

The illustrations accompanying will reveal rather definitely the "modus operandi" of my technic, and I adhere almost exclusively to the *stationary lingual loop appliances* for the various splendid reasons.

First and paramount in every appliance is—*results*.

Second, ease of adjustment and a positive knowledge of the adjustment and appliance.

Third, the most acceptable and least annoying condition to the patient, consistent with results.



Fig. 1.—Pliers in position on loop.

Fourth, stability, or no loss of continued action of the appliance.

Fifth, cleanliness.

Sixth, inconspicuousness.

Seventh, psychologic effect upon patient and parent.

### BAND MATERIAL IN THIS APPLIANCE

It is necessary to use a metal about 31 gauge, rigid enough to pass between the teeth without bending or springing after it is cemented into posi-

\*Given before the American Society of Orthodontists, Chicago, Ill., April 9-11, 1923.

tion and tension is applied. It should be sufficiently high fusing to take 18 K. soldering for anchor. Band material should be as nearly noncorrosive as possible, possess proper stability, and good edge strength.

#### WIRE USED

I use SSW No. 3 gold and platinum wire 19 gauge for lingual loop arch, and 18 gauge for base wire of the high labial arch, 23 gauge wire for finger spring extensions, and 14 solder. The size of the wire, of course, depends on where it is to be used. (The cost of this wire is \$1.40 per dwt.)

A word of caution pertaining to soldering the lingual wire to bands using 16 or 18 K., as you prefer; never let the flame extend any further on the wire than at the point exactly where you are soldering in order to get a perfect solder. If you do, the wire is weakened at this point, especially if it attains white heat, and as expansion is created by unfolding the loop, you may perchance break the wire at this point.



Fig. 2.—Showing unfolded loop.

If there are auxiliary wires or finger spring extensions acting to force anterior teeth labially, you should solder spurs intersecting the first premolar to offset the disposition to produce tipping or distal movement of the anchor teeth.

In soldering lingual wire to bands be careful to let the wire come in actual contact with all the teeth from canines to first molars, or anchor teeth.

The appliance is finished and placed in the mouth and the correction of the case continues in the following manner:

Fig. 1 shows the pliers in position in the act of unfolding the wire. This pinch should be just enough to feel the give under the pliers and pliers should be placed in the actual center of the loop, and this pinch should take place not oftener than possibly ten days or two weeks, and cover a period of possibly two to three months to unfold the loop, which should create an expansion of about 3 mm. There is no danger whatever of carrying the anchor teeth buccally if the technic has not been faulty, and the wire is intact with all teeth, from canine to anchor tooth, for it cannot ex-

pand other than uniformly, though the anterior portion of the arch will show expansion of about 3 mm. and posterior 1.5 mm. If, for any reason there should be apprehension about disturbing the anchor teeth, a stabilizing wire can be added to make sure of the procedure. A little practice will reveal that this is not necessary.

After this loop is unfolded and further expansion is desired, merely cut the wire at the canine region on either side, form another loop as originally, solder and place in position and continue. After the expansion is finished in this manner, disconnect and make a retainer of the character indicated.



Fig. 3.—Stationary loop appliance on mandibular teeth.



Fig. 4.—Loop straightened out in the stationary loop appliance, showing manner of expansion on the mandibular teeth.

Note closely the two illustrations of appliances in position on the human mandible and maxilla, observing that *this loop formed* is always *labially* and never *lingually*, for should the formation of this loop be reversed, the unfolding of it would bring the anchor teeth to the center of the mouth. May I add that when unfolding this loop make the pinch always as definitely as possible in center of the loop; it is not necessary to pinch at right angle of loop to compensate for overexpansion distally.

To be sure of technic and results, take round nose pliers and make a loop using inexpensive wire or silver solder; bend the wire to represent the arch in the mouth, make holes in a pasteboard card with a pin, put in posi-



tion, pinch, remove one end and see what has taken place. Continue this until you definitely know the effect of the unfolding of the wire.

If you have auxiliary wires or finger spring extensions, lift the base wire, getting the form of the extension wires with tension desired, then restabilize the base wire by placing forceps just in advance of the solder point and bring it back snugly into position.

#### PLIERS USED

The loop can be unfolded with the regular office or flat-nosed pliers bent at right angles, as indicated, and they should range in size from 2 to 4 mm., beginning with the smallest and using as conditions indicate until the loop is actually straightened out.

For *loop forming pliers*, the Blue Island No. 3 with beak reduced and jaws opened until it forms a loop when unfolded about 3 mm., is best suited, or one can take a small, round-nosed plier and form a loop very quickly.

In conclusion, I wish to say there is no "fool proof appliance," but in the hands of the understanding and careful operator satisfactory and definite results may be obtained with almost any appliance. However, to me the "stationary lingual loop appliance" results are so gratifying, the ease of *construction* and *operation* so pleasing, that I suggest you master its technic, and when you have done this, I believe truly you will adopt this appliance almost wholly to the exclusion of any form of *removable* adjustment *appliance*.

## DEPARTMENT OF ORAL SURGERY AND SURGICAL ORTHODONTIA

Under Editorial Supervision of

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### MISPLACED, UNERUPTED AND IMPACTED TEETH\*

BY WM. L. SHEARER, B.A., M.D., D.D.S., F.A.C.S., AND ALBERT F. TYLER,  
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**M**ISPLACED, unerupted and impacted teeth occur so frequently and cause so many different complications that we think it is important to consider them at this time.

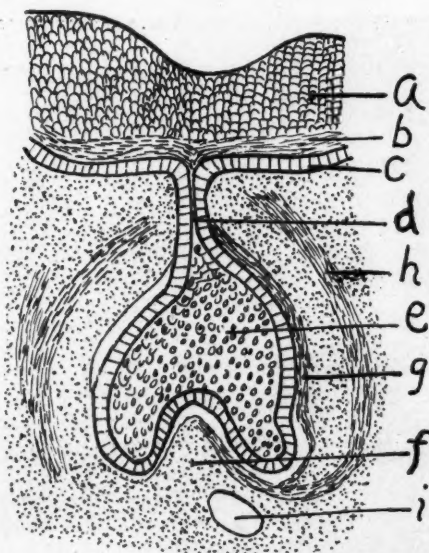


Fig. 1.—Tooth germ of pig embryo (after Frey and Thiersch). *a, b, c*, Layers of thickened oral epithelium, showing dental groove on surface; *d*, epithelial ingrowth, the end of which expands into the enamel sac; *e*, enamel organ; *f*, dental papilla; *g* and *h*, internal and external layers of the follicle wall; *i*, blood vessel.

#### EMBRYOLOGY

In order to have a clear understanding of the reason for misplaced teeth it is well for us to review briefly the salient points of the early development of the jaws and teeth.

\*Read before the International School of Orthodontia, Kansas City, Mo., March 17, 1924.

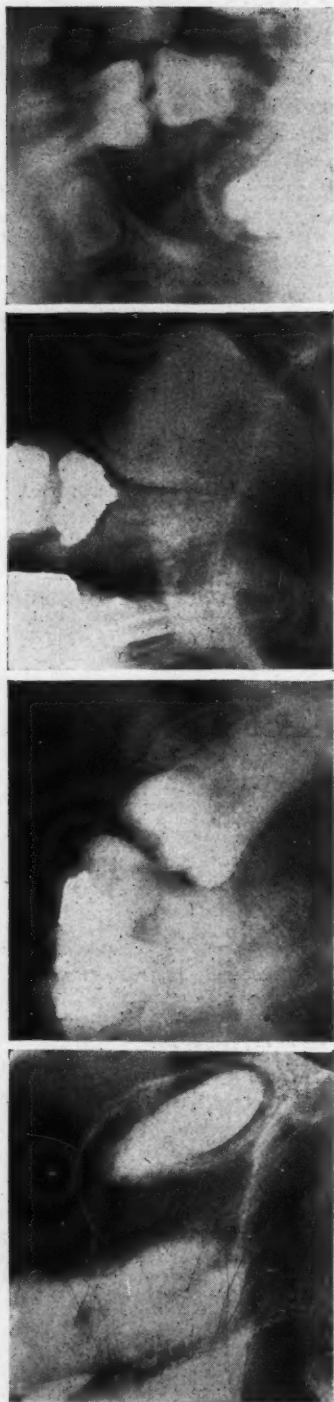


Fig. 5.

Fig. 2.—Normal tooth bud of second mandibular molar showing the crown formed and the roots just beginning to develop. Maxillary second molar unerupted, crown pointing backward.

Fig. 3.—Impacted maxillary third molar with erosion of the distal aspect of the second molar at the point of contact. Notice also that the first molar has been devitalized, probably in a vain search for the cause of the pain. This method of treatment is no longer necessary if x-ray examination is employed.

Fig. 4.—Maxillary third molar impacted with crown directly against the distal surface of the second molar.

Fig. 5.—Unerupted maxillary third molar with crown pointing upward and backward. This is an unusual position for the third molar.

Fig. 4.

Fig. 3.

Fig. 2.



The maxilla, it will be recalled, is formed by a portion of the first visceral arch on either side, uniting in front with the nasal frontal process. As development advances, the face and nose are formed by further fusion of these parts with the nasofrontal process. The maxillary jaw develops a ridge along the outer portion, which forms the cheek, and another ridge on the inner portion, which forms the gum. On the lingual surface of the gum



Fig. 7.



Fig. 6.

Fig. 6.—Maxillary third molar misplaced in nasal wall of antrum with the crown pointing backward, the tooth in the horizontal position.

Fig. 7.—Vertical view through the antrum of the same patient as in Fig. 5, proving the tooth was actually in the nasal wall of the antrum. Removed at operation.



Fig. 9.



Fig. 8.

Fig. 8.—Mandibular third molar impacted in the ramus of the jaw. Notice the area of bone absorption around the distal surface. This is usually due to infection gaining entrance along the upper surface of the crown and steadily working downward along the distal surface.

Fig. 9.—Mandibular third molar resting in the ramus of the jaw with the crown pointing downward and forward. This is an unusual position.

a shelf develops, and grows outward toward the midline and forms the palate which separates the nasal cavity from the mouth. At the time that the palate is growing toward the midline, the tongue, which earlier in embryonic life occupies the whole naso-oral cavity, recedes and allows the palate



Fig. 10.

Fig. 10.—Impacted maxillary canine in the usual position for this type.



Fig. 11.

Fig. 11.—Both maxillary canine teeth impacted. On the right side of the figure there is a supernumerary canine present, not a deciduous tooth as might be thought at first sight.



Fig. 12.

Fig. 12.—A maxillary canine misplaced in the palate with the crown pointing directly backward. An uncommon position.



Fig. 13.

Fig. 13.—A maxillary premolar misplaced in the palate. This type is even more uncommon than that shown in Fig. 12.



Fig. 14.

Fig. 14.—A mandibular second premolar impacted against the mesial surface of the first molar. This is a very infrequent type.

to fuse in the midline. Failure of the tongue to recede probably accounts for congenital cleft palate. After the nasal cavity has been separated from the mouth an evagination takes place on the lateral part of the nasal cavity on either side, and this forms the antrum of Highmore.

The mandible is formed by the caudal portion of the right and left first visceral arches, which fuse in the midline. As the jaws develop there occurs a row of evaginations of the ectoderm on both the upper surface of the mandible, and the under surface of the maxilla. Each evagination forms what is later called the tooth bud, an evagination taking place for each tooth except the permanent molars. The row for the deciduous teeth is placed

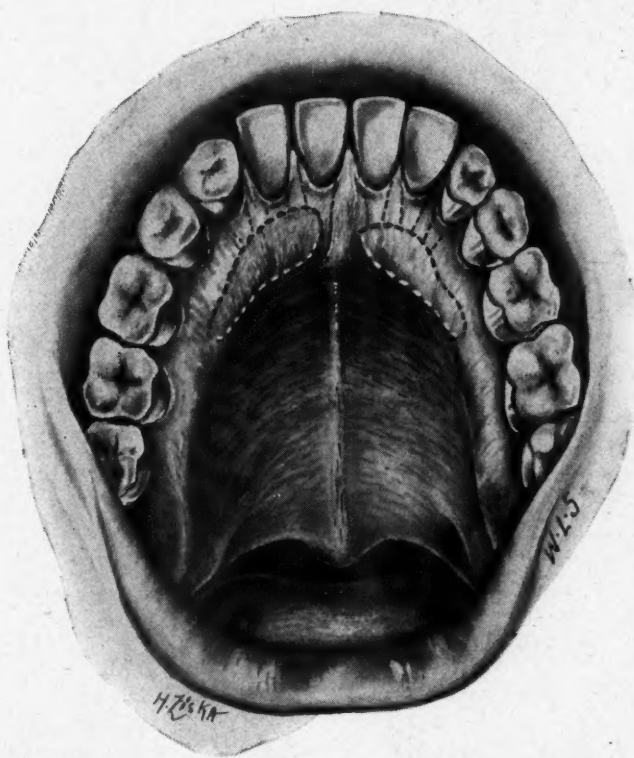


Fig. 15.—Diagrammatic drawing of misplaced maxillary canine, resting lingual to the roots of the lateral incisor tooth.

slightly to the lingual side of the jaw. For the first molar there occurs a single evagination and in its distal surface a bud forms for the second molar, and another for the third molar. At birth, tooth buds are present in the jaws for all teeth except the second and third permanent molars.

Each evagination grows deeper into the jaw until it forms a flask-like shape, the neck finally being pinched off. This leaves the tooth bud in proper place for each tooth. While this process is going on, a vascular structure of the mesodermic tissue, the dental papilla, pushes upward against the bottom of the flask, which gradually surrounds the mesodermic tissue with the exception of the extreme base. About this time the crown of the tooth has begun to form and the roots have started to develop. The ecto-



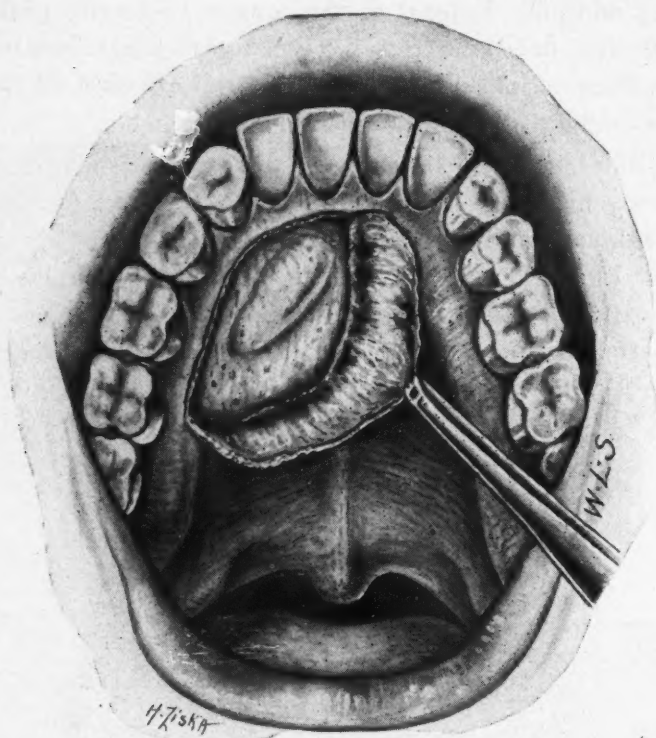


Fig. 16.—Drawing showing first step in the surgical removal of such a tooth. Incision is made close to the teeth, leaving just enough mucoperiosteum for suturing. This incision involves only the terminal branches of the descending palatine artery, thereby avoiding excessive hemorrhage and minimizing danger of slough of the flap.



Fig. 17.—Drawing showing how the margins of the bone are smoothed, leaving no rough edges after the removal of the teeth.

dermic layer of the tooth bud forms the hard portion of the tooth, while the mesodermic layer from the dental papilla, forms the pulp of the tooth.

It will be seen from this method of embryonic formation of the jaws and teeth, that some of the cells of the ectodermic layer may be misplaced in any part of the maxilla or mandible. This accounts for the fact that misplaced teeth may be found anywhere in the maxilla, the antrum, or in any position in the mandible.

#### FREQUENCY

Clinical observation shows that the third molars are misplaced more frequently than any of the other teeth. It has been our observation that

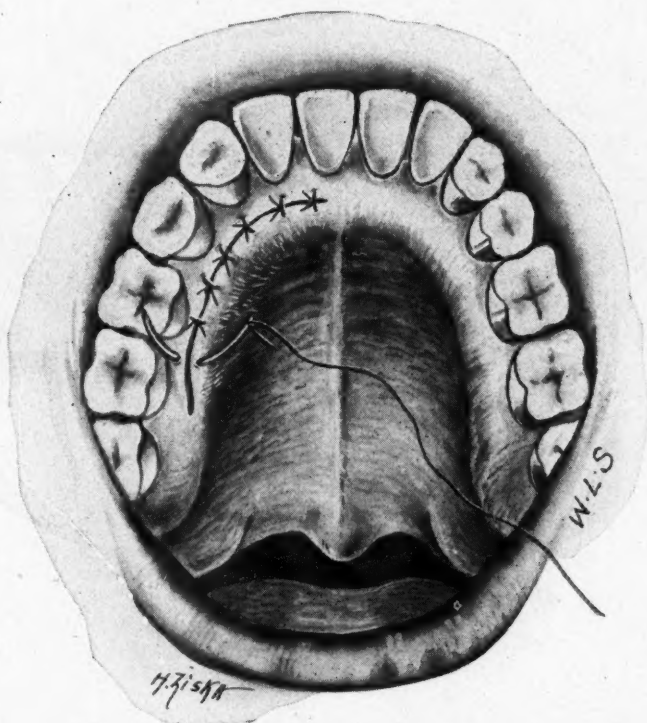


Fig. 18.—Drawing showing how the mucoperiosteal flap in the palate is closed with interrupted horsehair sutures. With this technic there is usually no sloughing and no depression in the palate.

they may be found in the jaw impacted in various positions or unerupted so that the crown of the upper third molar points backward and upward, or even in the posterior wall of the antrum, or as in one case, in the nasal wall of the antrum. The mandibular third molar may be found in any position, horizontal, crown pointing backward, upward or downward. The maxillary canines rank second in frequency of misplacement. This is probably accounted for by two facts: (1) The nasofrontal process fuses with the first visceral arch at this point giving more or less opportunity for misplacement of the tooth bud; (2) The upper permanent cuspids are very late in taking their place in the dental arch. Misplaced and unerupted bicuspid are very rare but they occur occasionally.

## SYMPTOMS

Misplaced, unerupted and impacted teeth frequently produce no symptoms. When they produce sufficient pressure either against another tooth or upon the mandibular nerve, the patient will begin to notice pain. This pain is characterized by a dull ache which is difficult for the patient to locate accurately, and which is more often thought to be a neuralgia of the face than anything else. This ache may be at the site of the misplaced tooth, but is frequently referred to other branches of the fifth cranial nerve so that in all cases of neuralgia of the face, it is well to make a careful phys-

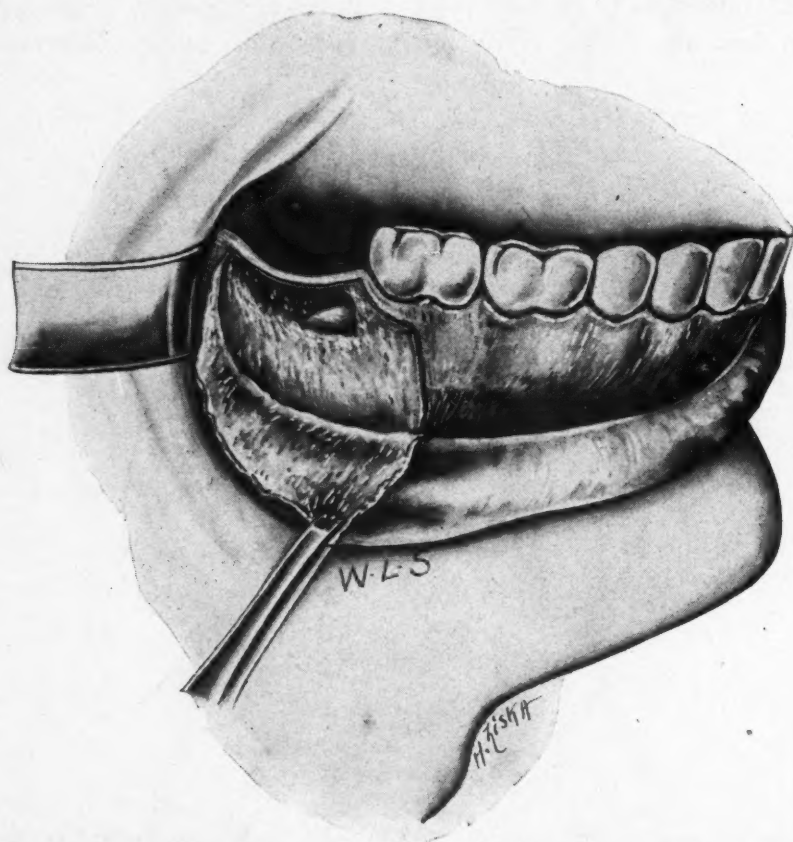


Fig. 19.—Drawing showing the method of making the mucoperiosteal flap when removing an impacted mandibular third molar. The cemento-enamel junction of the sound tooth is carefully avoided by curving the incision.

ical and x-ray examination of the teeth to determine whether misplaced teeth are a causative factor. Later development may be accompanied by swelling of the jaw at the site of the misplaced tooth.

## PHYSICAL FINDINGS

Physical examination of the mouth will frequently show an absence of the tooth in the normal location. If there has been swelling of the jaw at the site where the tooth should be, it will frequently show as a bulging of the jaw on the lingual or buccal surface. Misplaced canines can frequently be felt in the palate. Molar teeth which are misplaced will frequently give



no physical findings except their failure to appear. In all of these types of cases, the x-ray findings are of the greatest clinical value, for not only do they show the location of the misplaced tooth, but they identify it, showing whether there has been an erosion of a neighboring tooth, and whether the misplaced tooth is pressing directly upon the nerves in the jaw.

We feel that the x-ray examination is the most important part of the examination and that it contributes the greatest amount of information in arriving at the diagnosis.

#### TREATMENT

In the young, when teeth are misplaced or unerupted, orthodontic methods will frequently bring them down into proper position. In the adult,

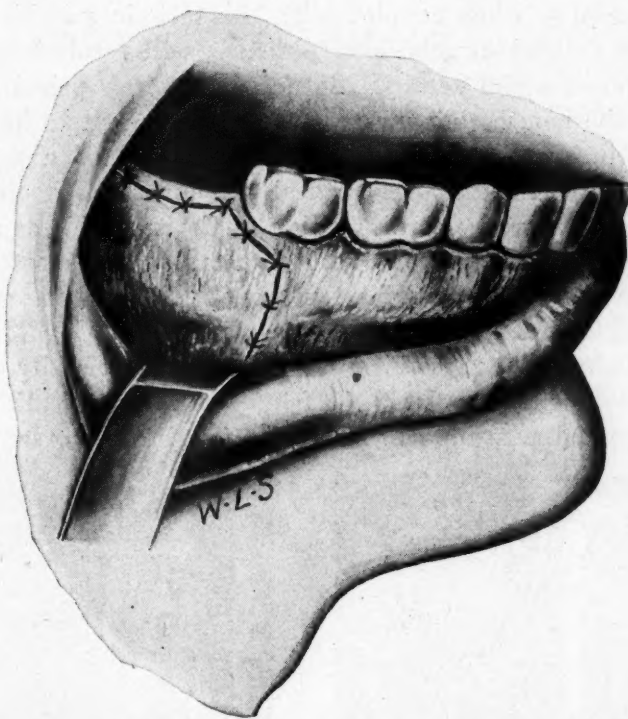


Fig. 20.—Drawing showing mucoperiosteal flap closed with interrupted horsehair sutures.

however, surgical treatment must frequently be employed. The type of operation used will depend upon the tooth which is under consideration, but the surgical principles underlying the operation are the same for all.

Briefly, these principles may be stated as follows:

1. The field of operation should be rendered as nearly aseptic as possible.
2. Nerve block anesthesia, with novocaine, the patient in the horizontal position, is the choice in adults.
3. The line of incision should never injure the soft tissues adjoining the cemento-enamel junction of sound teeth in the field of operation, and it should avoid the blood vessels supplying the flap.

4. After the incision has been made, the mucoperiosteum should be laid back sufficiently to give an ample working field for the bone work.

5. The overlying bone should then be removed carefully, exposing the misplaced tooth.

6. The tooth should then be lifted carefully from its bed without injury to other teeth, to the mandibular nerve or other vital structures. It may be necessary in many cases to cut the tooth in parts.

7. The bone margins should then be carefully smoothed.

8. The mucoperiosteal flap should then be closed with horsehair sutures.

9. If a large cavity must necessarily remain after operation, provision should be made for daily irrigation between the sutures at one point.

10. Where the work is properly done, there should be no febrile reaction, and the wound should heal by primary union.

These principles, when coupled with the technic suitable for each case and applied by an oral surgeon of experience, will result in maximum good results and minimum bad results. So universally can primary union be accomplished in the mouth that no one should be content to have an open infected wound in the mouth following the removal of a misplaced tooth. Proper application of the above surgical principles and technic will insure the absence of any fracture or dislocation of the mandible as a complication. Brute force has no place in surgery of the mouth. The most careful technic coupled with gentleness in handling the tissues will yield the greatest success.

The application of the flap incision used in the design for the removal of the mandibular impacted third molars, may be equally applied to the maxillary impacted third molars. In fact, certain modifications of this incision may be applied according to indication in different cases.

# DEPARTMENT OF DENTAL AND ORAL RADIOGRAPHY

Edited By

Clarence O. Simpson, M.D., D.D.S., and Howard R. Raper, D.D.S.

## THE ADVANTAGE OF RIGID FILMS OF VARIOUS SIZES IN RADIOGRAPHING THE MOUTH\*

BY JAMES A. BLUE, D.D.S., BIRMINGHAM, ALABAMA

**R**EALIZING that the stock films do not adequately meet the requirements in size for properly radiographing the mouth, I began an experimentation with various sizes of films which were cut from regular stock films.

For routine work three sizes have been adopted, numbered for convenience one, two and three. Number one is cut from the Eastman Regular

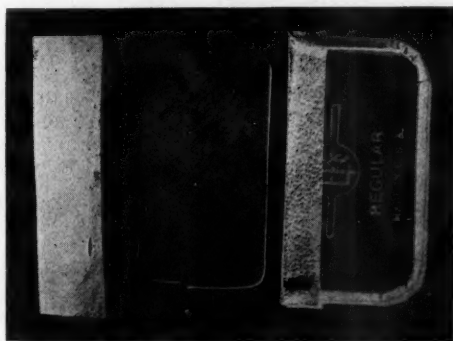


Fig. 1.—The film is shown ready for use with a piece of passe partout paper as it is cut for binding, and the metal which is used for stiffening.



Fig. 2.—The Eastman regular film is here shown with the metal which is used for stiffening.

Improved, keeping the same length,  $1\frac{5}{8}$  inches, and making the width  $\frac{7}{8}$  of an inch. The end which has been cut is protected with passe partout binding paper. Number two is the Eastman Regular Improved which is  $1\frac{5}{8}$  inches by  $1\frac{1}{4}$  inches. Number three is made from the Eastman Regular 1A, cutting it so that it will produce a film  $1\frac{1}{2}$  by  $1\frac{5}{8}$  inches. Again the cut side is sealed with passe partout paper.

\*Read before the American Society of Dental Radiographers, Cleveland, Ohio, September 7-8, 1923.



All of these films are stiffened with metal in a manner shown in Figs. 1, 2 and 3.

Number one is advantageously used for radiographing the maxillary and mandibular canines and incisors. Number two is used for mandibular molars and premolars and maxillary premolars and first molars. Number three is especially designed for the maxillary first, second and third molars, and permits, in flat arches, the necessary elongation of the roots to eliminate the malar shadows.

In radiographing a full mouth it is well to adopt a standard starting point. A good plan is to begin at the maxillary left, progressing to the right side and from mandibular right to mandibular left. A large cotton roll is placed along the gum margin and the palatal surfaces of the first, second and third molars and held with the left hand while number three film is placed with the upper margin along the median line of the palate. The film is pressed against the cotton roll and the patient instructed to hold the film with the thumb of the right hand, the film being held rigid with metal as

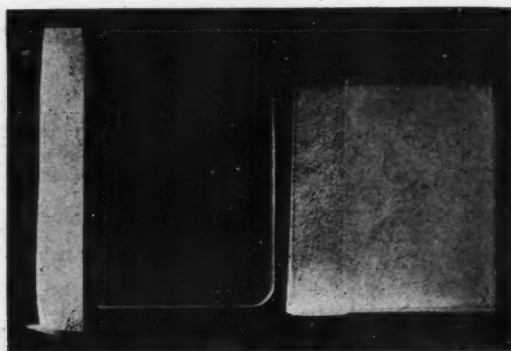


Fig. 3.—With the film packet ready for use, the metal stiffening is placed between the red and black paper on the back of the film, before it is bound with the passe partout paper.

mentioned above. The upper border of the film should not be allowed to extend to the opposite side of the mouth farther than the median line, as too much elongation will result.

The first molar and first and second premolars are radiographed by placing the cotton roll as described above along the gum margin and palatal surfaces of the teeth, placing film number two in the median line of the palate with the length of the film parallel with the long axis of the teeth, and balancing it on the cotton in such a manner that the first and second premolars and first molar will appear in their entirety on the film.

The canine, lateral and central are radiographed by the use of number one film, using cotton as previously described to balance the film in a way that the canine, lateral and central will appear on the film. Number one is also used for both centrals, using the cotton to balance the rigid film.

The right side of the mouth is handled as the left, the films being held by the thumb of the left hand.

The only difference in radiographing the mandibular teeth is that number two film is used for the first, second and third molars, being placed with

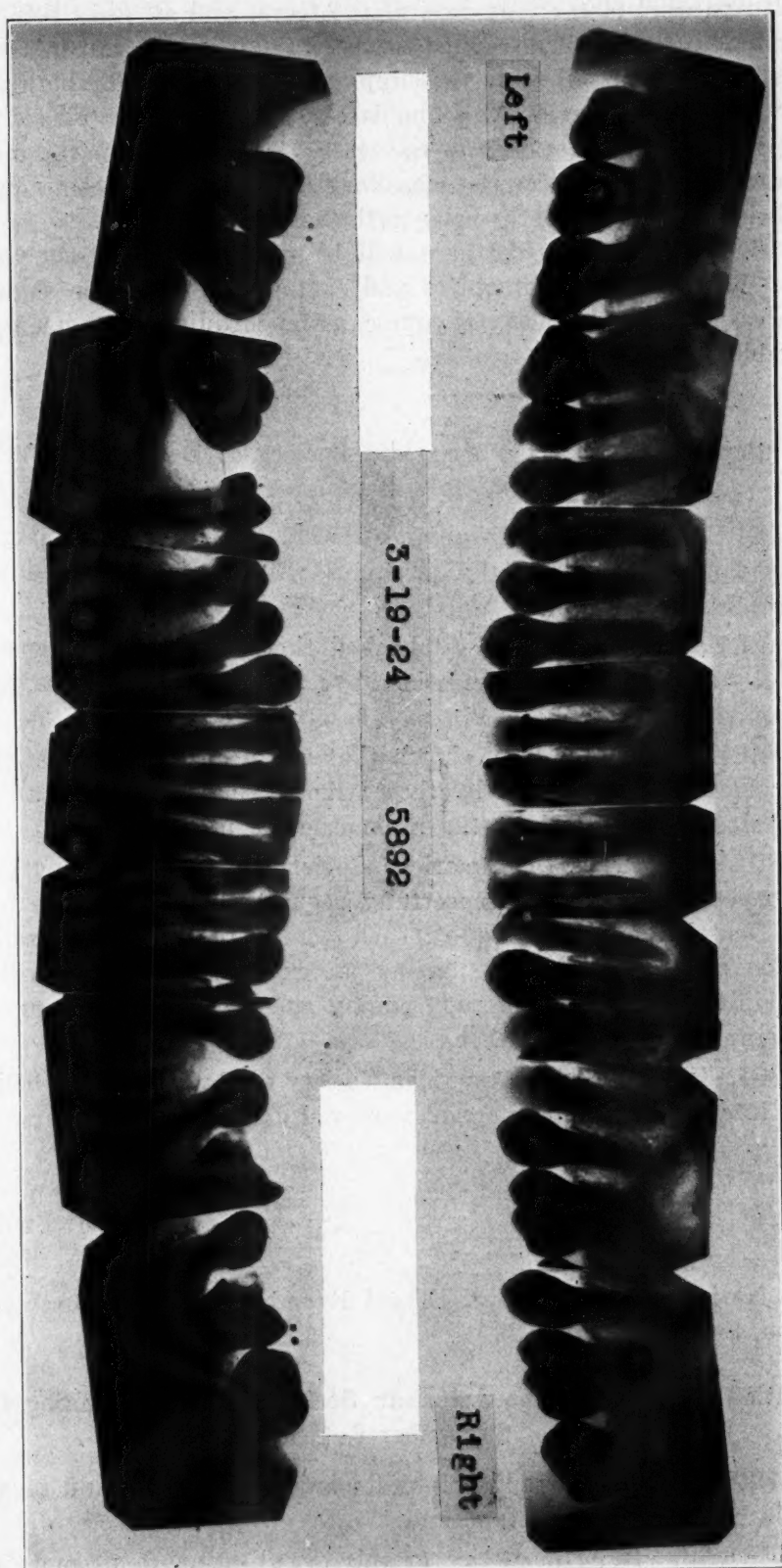


Fig. 4.

the width parallel to the long axis of the teeth, and all films being held by the forefinger. It is advantageous to use a small cotton roll in the manner described above as it prevents the slipping of the film. For both premolars and the first molar number two film is also used, it being placed with the length parallel to the long axis of the teeth. The technic for the mandibular anteriors is the same as for the maxillary anteriors, a sufficient quantity of cotton being used to properly balance the film.

As rigid films are used, there will be no distortion if the angles are correct. With care all root apices and contact points can be shown in the average case in fifteen films. Of course, as much duplication can be done as is desirable. (Fig. 4.)

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**Resolution Adopted by the American Society of Dental Radiographers,  
Cleveland, Ohio, September 8, 1923.**

**WHEREAS:** It has been proved beyond the question of a doubt that dentistry cannot be successfully practiced without the free and unlimited use of the radiogram, and

**WHEREAS:** It has been established that the radiogram can be most successfully employed by those who have a knowledge of the science of radiography, and

**WHEREAS:** It has been shown that the proper interpretation of the radiogram can only be made by those who have a knowledge of anatomy and pathology as revealed by the radiogram, be it therefore

**RESOLVED:** That the American Society of Dental Radiographers, in regular meeting assembled, respectfully request that the National Association of Dental Examiners require each candidate to show a satisfactory knowledge of radiography by passing an examination which will include the principles and practice of radiography and the proper interpretation of the radiogram: and be it further

**RESOLVED:** That the American Society of Radiographers believe that the best interests of the public can be served only by such a course.

(Signed)

MARTIN DEWEY,  
HENRY J. FELTUS,  
ARBOTT A. MOORE.

The National Association of Dental Examiners acted favorably on this resolution, September 10, 1923.

**Resolution Adopted by the American Society of Dental Radiographers,  
September 8, 1923**

**WHEREAS:** Dental radiographic technic as practiced and taught is at present in a rather chaotic state, and

**WHEREAS:** It is the desire of this organization to promote a better understanding of certain underlying principles which govern the application



of dental radiographic technic, to the end that greater harmony and a better mutual understanding among various teachers and practitioners may develop, be it therefore

**RESOLVED:** That this society direct the attention of those interested in this branch of dental science to the following:

**FIRST:** That the position of the head be established in terms of occlusal plane. That the correct position of the head is to have the occlusal plane horizontal. That facial landmark lines should be looked upon simply as representing the occlusal plane.

**SECOND:** That it is important to keep clearly in mind that the x-ray angle of projection may be altered in only two planes, namely, a vertical plane and a horizontal plane. That the vertical plane angles should be measured mathematically and expressed in terms of so many degrees above or below the horizontal. That after the vertical plane angle is set, the operator then centralizes the central ray and establishes the horizontal angle. That it is best for dental work that the tube holders be made in such manner that after the vertical angle is set, it will not then be thrown off by other adjustment of the machine incident to centralization of the central ray and establishment of the horizontal angle.

**THIRD:** That the rule to have the x-ray angle of projection such as to strike, at right angles, a plane bisecting the angle formed by the long axis of the tooth and the surface of the film, is sound from a mathematical standpoint, but, in the present state of the art, clinically impractical.

(Signed) AMERICAN SOCIETY OF DENTAL RADIOGRAPHERS.

## ABSTRACT OF CURRENT LITERATURE

Covering Such Subjects as

ORTHODONTIA — ORAL SURGERY — SURGICAL ORTHODONTIA — DENTAL RADIOGRAPHY

It is the purpose of this JOURNAL to review so far as possible the most important literature as it appears in English and Foreign periodicals and to present it in abstract form. Authors are requested to send abstracts or reprints of their papers to the publishers.

**Urinary Infections and Stomatology.** Tellieer (Lyons). *Le Revue de Stomatologie*, February, 1924, xxvi, 2.

The author has already published a number of articles on this subject which comprises urinary infections of dental origin. The beginnings of our knowledge in this field came from Americans. The idea is still new in France and the author prefers to speak of it as an as yet unproved theory. This theory he would term distance infection from primary local infection. The seat of the latter naturally varies, and so does the seat of the distance infection. To understand the multiplicity of lesions Rosenow's research in the elective localization of streptococci is requisite.

In France the urologist Heitz-Boyer isolated urinary infections which take their point of departure from the intestine, and he even goes so far as to suspect the intestine in all forms of infection of the urinary apparatus. It is only necessary to extend the doctrine of the enteric source of infection to include the mouth to bring it in connection with the American doctrine. Rafin, another French urologist, would in urinary infections first exclude the gonococcus and catheter infection and then look for a focus at some distant part of the organism. He has traced otherwise unexplained hematuria to tonsillitis and holds to the frequent buccal origin of urinary infections. In America the Mayos have, of late, traced much urinary infection to the teeth—pyelitis, calculi, etc.—this being a continuation of the pioneer work of Rosenow who is associated at present with the Mayo clinic. In connection with the laboratory activities of Rosenau, various clinical urologists in the same institution (Bumpus, Meisser, Helmholtz, etc.) continue to report cases. Much experimental work has been done on animals in this connection. One conclusion thus far reached is that the affection known as pyelonephritis may be almost wholly of buccal origin. Through some mutation the streptococcus in these cases elects only the pelvis of the kidney for its secondary onslaught.

The dental lesion usually accused is the para-apical granuloma but in certain cases it may be pyorrhea. At the present time the clinician ought certainly in any of these urinary lesions to look for mischief in the teeth and tonsils—for example in renal colic. The author having devoted much time to the study of the American and English authors in this new field

realizes that the view of Heitz-Boyer which accuses the intestine only in these renal infections must be modified and amplified. This view is correct as far as it goes, but it is not sufficiently comprehensive. Nor must a wider view ignore the fact that the teeth are not the only or even the most common primary focus, for according to Billing's most recent writings on this subject there are two cases of chronic rheumatoid joint infections which proceed from the tonsil for each one beginning in the teeth. The dentist as an artisan is not interested much in the tonsil, but the genuine stomatologist must always associate it with the teeth when there is a suspicion of focal infection.

These chronic forms of dental sepsis must not, of course, be confused with acute or surgical sepsis of buccal origin. Both the local and distance lesions are entirely different, just as the bacterial cause differs in each class. To exclude these cases one may speak of chronic dental sepsis as medical sepsis.

**Mouth Infection and the Thyroid Gland.** O. T. Osborne (New Haven). *The Journal of Ophthalmology, etc.*, March, 1924, xxviii, 3.

The dental and medical professions should recognize the close relationship between mouth infections and the disturbances of the thyroid gland. The author believes that, leaving out of consideration goiter occurring in goitrous regions from iodine privation, and goiter in young girls at puberty, also from iodine privation, more than fifty per cent of hyper- and hyposecretion of the thyroid gland is due to mouth infection, which means chiefly infection of the teeth and gums. Since the thyroid gland is periodically much more active in the female, this organ in her is more susceptible to infection than in males. Whenever in practice we encounter either hyper- or hypothyroidism not attributable to the conditions enumerated above, we should, to insure permanent success, direct our treatment to mouth infection.

**What Does the Eye, Ear, Nose and Throat Specialist Know About the Teeth?**

W. G. Shemeley (Philadelphia). *The Journal of Ophthalmology, etc.*, March, 1924, xxviii, 3.

The dentist does not have a high opinion of the knowledge of the teeth possessed by the otolaryngologist. However, the type of dentist who holds to this opinion is not the reading and thinking dentist and it is necessary to show the dentist of the artisan type that the nose and throat man is not an entire stranger to stomatology. The author cites the case of a young woman with bilateral neuritis of the eighth pair, in whom both clinical and radiographic findings pointed to the teeth as the source of the mischief. For a year the author tried to have the family dentist extract the diseased teeth, but in vain. This dentist had done a lot of expensive work on the teeth and perhaps was loth to undo his work so soon, but in any case he became enraged over the request and made the remark which is the caption of the author's paper. Now otolaryngologists as a class have long known of the relationship between diseased teeth and focal infection, and know that conservative work in any field, however admirable, must have its limitations. Unless the rank and file of dental practitioners can be made to realize this



fact, the dentist of the future who is successful in his specialty will be first of all an M.D., and secondarily a specialist in dental work.

**Relation of Correct Eating to Good Teeth.** R. H. Rose (New York). *The Review of Clinical Stomatology*, January, 1924, i, 2.

The author gives two case histories to illustrate this relationship. The first occurred in a woman of thirty-three, born with excellent teeth which she retains with the exception of an extracted upper wisdom that did not come through well. At sixteen she had eighteen filled cavities of which many were small, and one in which the nerve had been killed and the root filled. She has had no new cavity formation since. From the age of sixteen to twenty-four she has eaten largely of fruits and salads, and since twenty-four has added milk. She has had in other words plenty of vitamine, mineral matter in general and calcium. The author does not insist that the diet arrested the caries, and in any case the latter has repeatedly been shown to be an ailment of childhood, but merely gives the coincidence for what it is worth. The other case occurred in a sister of the preceding who was likewise born with good teeth but who always drank plenty of milk, although the first sister as stated, could not take it until she reached the age of twenty-four. She developed few cavities during the prepuberal period. On the whole and despite the large number of fillings of Case 1 in early life, these women have exceptionally good teeth. In all such cases, as well as in the contrary type of unusually poor teeth, the observers should place the cases on record with the habitual diet of each patient. It is possible that some relationship may be upheld between diet and dentition. It is to be feared, however, that checks will be encountered; for in certain cases in which two in the same family have been inordinately fond of milk one may have unusually good teeth and the other very poor ones. In such a case there may be a family history showing examples of early loss of teeth.

**Sixty-five Cases of Hypodermic Needle Broken in Local Analgesia.** T. Blum (New York). *Dental Outlook*, March, 1924, xi, 3.

The author's chronologic table shows that this accident is becoming more frequent as years pass, nearly half the cases having been reported in 1922-23 (none as yet listed for 1924). Most of these accidents occurred with the needle in the pterygo-maxillary region. In most of them, again the thin steel needle was employed. The occurrence of the accident is largely attributable to the use of the old Fischer technic, in the author's opinion. The originator is said to have himself abandoned his former technic. The author's—Blum-Seidel—technic is recommended, along with the heavier needle. When the accident has occurred the broken fragment should at once be removed, but this may be difficult or impossible without a formal operation in which anesthesia must be obtained. Needles retained in the tissues require a radical operation under general narcosis. A study of the table shows no fatality mentioned. Damage suits evidently occur as the author mentions testifying in numerous cases. This is his second paper on the subject.

**Combating Infectious Diseases Originating in the Oral Cavity.** G. S. Millberry, San Francisco. *The Dental Summary*, February, 1924, xliv, 2.

The author quotes C. H. Mayo to the effect that the vast majority of infectious diseases of childhood take their departure from the nose and throat, this applying also to fatal cases. Hence, the dentist is interested in this sequence as well as the family physician. The problem is, of course, far wider than that of extracting diseased teeth, although there is reason to believe that an unsanitary mouth may often pave the way for an infection. The stomatologist is concerned primarily with eradicating all local disease from the buccal cavity, while he must also trace every distant infection to the mouth when the latter is the source of it. The dental hygienist has unusual opportunities to inculcate the principles of mouth hygiene in the minds of children and adults. Sweeping statements like the one quoted from Mayo must mean that most of the contagious diseases of childhood begin in the upper air and food passages, and of course it is not contended that the responsibility of the dentist extends to the prevention of diphtheria, scarlet fever, cerebrospinal meningitis, etc. We assume that a clean, sterile mouth and nasal passage reduce somewhat the danger of contamination, but this has not yet been proved. In the case of cancer some surgeons state that they have never seen one appear in a perfectly clean mouth.

We know that the secondary complications of acute infectious diseases are usually determined by the presence of ordinary pathogenic bacteria in the upper passages, and in theory we may imagine that with these in good, sterile condition these complications such as prove so fatal in measles, scarlet fever, whooping cough, etc., are less frequent than in those with infected mouths; but, as before stated, this claim has not yet been fully upheld.

**Causes of Pyorrhea According to the Endocrine Theory.** N. M. Gassen (New York). *March*, 1924, xl, 3.

The author begins his joint review of this subject with the localists, beginning with Riggs, who treated pyorrhea with scaling. An entire school of dentists have followed closely in his footsteps and have on the whole given good service to their patients. Stillman and McCall are the modern exponents of this view and believe the influence of other than local causal factors is almost negligible. These local agencies are almost wholly mechanical. At the other extreme metabolic and food factors are emphasized, especially the calcium metabolism, and thus we are brought directly to the endocrine glands some of which preside over the latter. It is even possible to see in anomalies of the lime metabolism a solution of the problems of both caries and pyorrhea, for the former develops during the period of growth, when the bones are demanding lime and causing a shortage in other structures, while the latter develops chiefly in the elderly, when there is a superfluity of lime, which leads to its deposit in various localities including the gums. This doctrine leaves out infection as an essential factor and explains why we see good teeth in a bad mouth and bad ones in a clean mouth. Future treatment of pyorrhea will therefore honor both the mechanical and metabolic theories, or in other words will combine scaling with diet.

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## EDITORIALS

### Occlusion: What Is It?

WE think it was Dr. Angle, who first defined orthodontia as "that science which has for its object the correction of malocclusion of the teeth." We find it rather hard to improve upon that definition although our knowledge of orthodontics and correlated sciences has grown considerably. In spite of the various advancements that have been made along orthodontic lines, we find the orthodontic profession is not in full accord as to what occlusion is. Not only is this true of the orthodontists, but the dental profession also holds various opinions regarding what should be included under occlusion and how it should be defined. We have in a previous issue, called attention to the definition of occlusion, as adopted by the Committee on Nomenclature of the American Dental Association,<sup>1</sup> as has also the editor



of the *Dental Items of Interest*.<sup>2</sup> A study of the editorials mentioned, as well as the report of the Committee on Nomenclature will show that various opinions have been advanced concerning the definition of occlusion, and why these definitions should be used.

In order that this subject may be more interesting, we call attention to a report of the committee of the Eastern Association of Angle Graduates on Dental Nomenclature. This Committee deals with occlusion, and various types of occlusion as defined by the Committee on Nomenclature of the American Dental Association. In many respects we agree with the report as turned in by the Committee of the Eastern Association of Angle Graduates, and the defects that have been pointed out in their report have always been apparent. We realize that it is very difficult to decide upon a definition of occlusion, because so many individuals will look at conditions from different points of view, and unfortunately there has crept into the dental profession the tendency to consider occlusion as a "contact of the teeth of one arch with the teeth of the opposing arch." This may be influenced by the origin of the word occlusion, but in the study of the dental apparatuses of different animals, we find that if we are going to consider occlusion as a "contact of the teeth of one arch with the teeth of the opposing arch," a great many animals will be condemned as having abnormal occlusion or malocclusion of the teeth which are functionally perfect. We believe there has always been a tendency to confuse "occlusion" with "function" or to try to make occlusion some part of mastication.<sup>3</sup> We consider occlusion as an anatomic condition, and because of that anatomic condition or arrangement, certain functions are made possible. We would define occlusion as being the relation which the teeth of one arch bear to the teeth of the opposing arch. We are perfectly willing to stop with that definition but if a longer definition is desired we would say that occlusion is the relation which the teeth of one arch bear to teeth of the opposing arch as related to the face and cranium. In the study of malocclusion it is being recognized more and more that we can only classify and diagnose an abnormality when we base that classification upon two things; namely, the relation which the teeth of one arch bear to the teeth of the opposing arch, and also the relation that the teeth bear to the face and cranium. The position of the dental apparatus will depend upon the type of the individual or the animal under inspection.

In the study of occlusion of mammals as we know them to exist today, regardless of the race, type or family, we find a certain definite relation of the teeth of one arch to the other, which in the molar region is positively identified by the relation which the protocone of the maxillary molar bears to the talonid of the mandibular molar. Attention was called to this by Dr. Hellman, several years ago in a paper in which he emphasized the fact that the mesiolingual cusp of the maxillary molar in its relation to the mandibular molar is a better diagnostic point than the relation of the mesio-buccal cusp of the maxillary molar to the buccal group of the mandibular molar.

We find in the study of normal occlusion, the cusp relation of one arch to another is constant, but we also find, regardless of this constancy that the arches, as placed in the face and cranium, have different positions in various types and in different animals, which facts account for the saying that occlusion is the relation of the teeth of one arch to the opposing arch as related to the face and cranium.

We particularly object to a definition which says that occlusion is the contact of the teeth of both jaws when closed or during those excursive movements of the mandible which are essential to the function of mastication. Immediately there may be some discussion as to what is meant by mastication. If by mastication is meant the grinding of the occlusal surface of the molars and premolars together, you then have too limited a function to include all of the teeth which are in normal occlusion.

If various functions of the teeth as found in different animals are considered when the teeth are used for the purpose of "securing the food," it will be realized that a great many teeth perform an important function and do not act as molars and premolars do in the act of grinding, as some would consider mastication to be. In fact, there are many functional teeth found in normal occlusion which are not in contact with teeth of the opposite jaw and which cannot be in contact. Furthermore, there are many normal dentitions in which the "coming together" of teeth so as to make contact would mean a malocclusion, because the teeth would not be able to perform the function intended for them by nature.

We agree with a great many things suggested by the Committee of the Eastern Association of Angle Graduates but do not believe that occlusion should be defined as one of the phases of mastication. We believe that occlusion can best be described so as to let it remain as a condition, something anatomic, something which exists and because of its existence makes possible certain functions. Mastication is part of the act that is made possible by occlusion. Occlusion is such an arrangement of teeth with all the anatomic structure of the face and cranium as to make possible the use of these teeth in "securing the food" and in the performance of certain secondary functions.

We approve of the suggestion of the Committee on Nomenclature of the Eastern Association of Angle Graduates, namely, that the Committee of the American Dental Association, in considering terms, consult men who are particularly versed in the terms they are attempting to define. In times past the reports of the Committees on Nomenclature have been turned in and have been influenced by the personal wish of the men on the Committee, rather than by the scientific facts governing the selection and the use of terms. We hope in the future that the reports of the Committee on Nomenclature will be more carefully considered than heretofore.

#### REFERENCES

<sup>1</sup>Internat. Jour. Ortho., Oral Surg. and Radiog., November, 1923.

<sup>2</sup>Dental Items of Interest, October, 1923.

<sup>3</sup>Dental Nomenclature, Internat. Jour. Ortho., Oral Surg. and Radiog., May, 1924.

## ORTHODONTIC NEWS AND NOTES

### Formal Opening of Deaner Institute

105 Hunter Avenue, Kansas City, Mo.

The formal opening of Deaner Institute will be held May 23 and 24. Program by Rosenow, Giffin, King, Lyons, Le Gro, Furrow, Tinker, Bruening, and others. Missouri State Meeting, Excelsior Springs, May 26, 27, and 28. Afternoons devoted to golf and recreation. Personal invitation extended to you to be present.



Deaner Institute, Kansas City, Mo.

#### *Friday, May 23*

- 10:00 A. M.—Dedicatory exercises and unveiling of bronze tablet—Dr. Otto U. King, Chicago, Ill.
- 2:00 P. M.—Dr. W. A. Giffin, Detroit, Michigan, Lecture.
- 3:00 P. M.—Dr. Chalmers J. Lyons, Ann Arbor, Michigan, Lecture—“Cysts and Tumors of the Mouth and Jaws.”
- 6:00 P. M.—Dinner for honor guests at Kansas City Club.
- 8:00 P. M.—Dr. Edward C. Rosenow, Rochester, Minnesota. Lecture—“Focal Infection With Special Reference to Oral Septis.”

#### *Saturday, May 24*

- 10:00 A. M.—Clinics:  
 Dr. A. Le Gro, Detroit, Michigan—“Porcelain Jacket Crown Technic.”  
 Dr. W. A. Giffin, Detroit, Michigan—“Illustrated Clinic—Prosthesis.”

- Dr. C. J. Lyons, Ann Arbor, Michigan—“Oral Surgery.”
- Dr. G. R. Warner, Denver, Colorado—“Radiographic Diagnosis of Sinusitis.”
- Dr. E. T. Tinker, Minneapolis, Minnesota—“Crown and Bridge Technics.”
- Dr. E. H. Bruening, Omaha, Nebraska—“Study of Art Anatomy With Special Reference to Face Form and Expression.”
- Dr. George P. Williams, Topeka, Kansas—“Survey of Clasps.”
- Dr. Charles A. Furrow, Tulsa, Oklahoma—“Constructive vs. Destructive Partial Restorations.”
- Dr. E. E. Welch, Topeka, Kansas—“Gold Inlay Technic.”
- Dr. Charles E. Woodbury, Council Bluffs, Iowa—“Cast Gold Crown and an Inlay Bridge Attachment.”



**The American Society of Dental Radiographers**

The annual meeting of the American Society of Dental Radiographers will be held at the Adolphus Hotel, Dallas, Texas, Friday and Saturday, November 7th and 8th, 1924.

All dentists interested in radiography are invited to attend.—Arnott A. Moore, President, 131 Allen St., Buffalo, N. Y. Martin Dewey, Secretary, 501 Fifth Ave., New York, N. Y.

**News and Notes**

Dr. John S. McLaren announces the removal of his office to Suite 320, McJunkin Building, 4554 Broadway, corner Wilson Avenue, Chicago, Ill.

Dr. A. K. Stebbins wishes to announce that he is now associated with Dr. J. W. Rawlings, 704 St. Helens Avenue, Tacoma, Washington, in the practice of orthodontia.

Dr. Frank M. Casto announces the removal of his office to 1336 Keith Building, Euclid Avenue at East Seventeenth St., Cleveland, Ohio.

Dr. R. B. Van Gieson announces that on April 1st, 1924, Dr. J. B. Stevens, formerly of Elizabeth, N. J., will be associated with him in the practice of orthodontia exclusively, Medical Arts Building, Suite 204-205, 1019 Broad Street, Newark, N. J.